Vol. 120, No. 4

PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

January 25, 1945

Paper Production 17,182,888 Tons in 1944

Is Largest Output In Any Single Year With the Exception of 1941— This Near-Record Made In Spite of Diversion of Labor, Material And Equipment To War Production and Shutdown of 16 Mills.

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 22, 1945 — The production of paper and paperboard in the United States was 17,182,888 tons in 1944, the Bureau of the Census reported last week in announcing preliminary production figures. This is the largest production of these products in any single year except in 1941. It is significant that this near-record was made in spite of the diversion of labor, material and equipment to war production and of the shutdown of 16 mills.

The production of paper, which is particularly dependent upon the availability of wood pulp, was slightly lower in 1944 than in 1943, and substantially lower than in 1941 and 1942. The output of paperboard, on the other hand, rose to 8,972,826 tons, exceeding any other previous record. The most important increases were in container and miscellaneous boards which are particularly important for war uses. The achievement of this record in paperboard is attributed principally to the effectiveness of the waste paper, salvage campaign. Sufficient waste paper was made available so that large scale diversion of wood pulp from paper to paprboard manufacture was unnecessary.

The 1944 production of newsprint at 720,752 tons is the lowest recorded output in the last 45 years. Shipping sack, special industrial, sanitary, absorbent and building papers were the only types of paper for which the 1944 production exceeded that of 1943. The production of all other grades of paper was slightly less than in 1943.

PAPER AND PAPERBOARD: PRODUCTION IN THE UNITED STATES BY MAJOR TYPES, 1942-1944

(Tons of 2,000 pounds)

Type of paper and paperboard	1942	1943	1944[1]
All types	17,082,862	17,035,688	17,182,888
Paper, total	9,114,678	8,415,254	8,210,062
Newsprint	967,211	811,309	720,752
Groundwood printing and specialty paper	610,168	585,673	581,680
Book paper	1,704,029	1,592,878	1,443,423
Fine paper	1,066,576	1,020,601	967,801
Coarse wrapping, converting and bag paper	2,275,250[2]	1,946,908	1,922,326
Shipping sack paper	250,591	315,469	391,263
Special industrial paper	187,897	207,662	245,639
Sanitary paper	811,343	806,023	808,773
Tissue paper	170,653	162,766	157,358
Absorbent paper	64,530	88,254	90,271
Building paper	1,001,383	877,582	880,776
Other paper, not elsewhere classified	16,148	129	—
Paperboard, total	7,969,184	8,620,434	8,972,826
Containerboard	3,755,438	4,087,972	4,240,336
Folding boxboard	1,711,795	2,047,238	2,114,377
Set-up boxboard	996,688	829,102	749,504
Cardboard	53,963	63,757	69,748
Building board	1,052,054	1,063,851	1,087,482
Miscellaneous board	399,246	528,514	711,379

[1]Preliminary. Data for 1944 are virtually complete for all practical purposes, although they include estimates for the production of 61 mills in December. Data for the other eleven months are complete, and the over-all percentage of estimate for all types of paper and paprboard for the year 1944 is 0.6 percent. In no case does the proportion of estimate for any of the several types of paper and paperboard exceed 2.5 percent.

[2]Includes data on the production of cup stock subsequently classified as folding boxboard.

Solves Unloading Problem

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., January 22, 1945 — The Container Corporation of America, which has a record of many firsts, is again in the limelight. This time it is an unloading bee at its Manayunk plant participated in by executives Everett Temple, assistant to the vice president; Leo Morgan, traffic manager, and James E. Purvis, mill plant manager. The Corporation faced with a shortage of 65 cents-a-day men to unload freight cars solved the problem by using $5,000 to $10,0000 a year men.

Last Christmas Day, James E. Purvis, paper mill plant manager, took stock and found the machine would have to be shut down unless waste paper could be unloaded at once. Mr. Purvis, conceived the idea of addressing a memorandum—very formal in tone—to all department heads, "inviting" them to put on warm, old clothes and report for unloading and stacking work in the "raw stock" department.

Like a command performance, the department heads and their subordinates took the hint. Most of them in the $5,000 to $10,000-a-year brackets, some a little higher, unloaded the cars all right on their own time and received no pay. A week later—right after New Year's Day—plant manager Purvis sent another "invitation" to attend an unloading bee, and was agreeably surprised with the response of executives in suitable attire. Until the 65-cents-an-hour ment are available it looks very much like the executives are going to be "invited" again and again.

Union Bag Employees Dine

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., January 22, 1945—About 250 members and guests of the Employees' Association of the Union Bag and Paper Corporation attended the annual banquet and dance of the organization held last week. Albert LaFarr, president of the organization, was general chairman and presided as master of ceremonies. A number of prominent officials of the company were guests. The other officers of the group are John A. Bennett, treasurer; A. W. Parker, financial secretary, and Ida Fitzgerald, recording secretary.

Rising Costs Worry Canadian Industry

Steady Increase In Price of Materials, Higher Pay For Labor and Lack of Skilled Men May Result In Higher Newsprint Prices — New Brunswick Plans Forest Development — Other Late News.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., January 22, 1945—A shadow that haunts the dreams of all operators in the pulp and paper industry is the steady and persistent rise in costs of production. This applies to the final cost of materials as laid down at the plant, to equipment replacements as and when obtainable, to every form of transportation, and above all to the cost of labor, the latter resulting not only from the setting of higher standards by government decree and labor union agitation, but also from lowered efficiency through the necessary employment of many inexperienced men, the residue of labor after the demands of the war services and war industries have been met.

For this reason the industry here is following with the closest interest the movement of newsprint manufacturers in the United States for a further adjustment in the price of newsprint and gives active support to the warning of U. S. mills that unless a higher price is conceded a number of marginal mills may have to close down, or increasingly divert production to more remunerative products.

It is understood that Canadian mills have made, or may be called upon to make, representations as to actual costs at the present time to the Canadian authorities for transmission to the U. S. price control board, the O.P.A., and that the latter, in promising to review the latest cost representations, has undertaken to give a decision as soon as the necessary tabulations are available in respect to fourth quarter results in 1944. The matter is one of major importance to the industry here, as the continental price of newsprint is set in Washington, following agreement between governmental administrative bodies representing the U. S. and Canadian governments.

New Brunswick Plans Forest Development

In a comprehensive plan to provide jobs when the armed forces are demobilized and workers are released from war industry, the New Brunswick Reconstruction Committee includes in its program recommendation for an expenditure of $11,150,000 on forest development. This would involve the setting up of a Forest Ranger School at the University of New Brunswick, the provision of a 6,000 mile network of forest roads, establishment of a National Park and also a provincial park in each county of the province. The Committee has spent 18 months in its study leading up to the report and has held sittings in every county in the province. It is headed by Dr. Norman A. M. MacKenzie, former President of the University of New Brunswick.

Criticize Forest Policy

Prepared by 11 provincial forestry experts, a brief urging better management and a complete survey-inventory of the forest resources of Nova Scotia has been presented to the government of that province. The brief claims that the forests of the province are deteriorating in quality and productiveness and that there is grave danger that stands of merchantable sizes will be exhausted before a new crop can be matured. Maintaining that there is not a sufficient fire tower coverage in Nova Scotia, the brief points out that over a period of 10 years an annual average acreage of 15,427 has been burned, mostly through carelessness. The value of production from the forests of Nova Scotia in 1943 was $22,000,000 from a productive area of approximately 12,000 square miles.

The brief states that in operations for lumber two-thirds of the wood cut in the forests is lost during manufacture and use. Even in the case of pulp and paper companies it is estimated that 60 per cent of the material cut is wasted. The experts claim that the present average practices in Nova Scotia in manufacture and use of forest products are far below top efficiency and that tremendous savings could be made. "If the best methods were put into effect to the fullest extent economically feasible, a saving of approximately 22 per cent of the present drain on the forests would be accomplished," they state.

Appeal for Old Office Papers

Carrying the campaign for the salvaging of waste paper into high gear, Herbert C. Holland, the chairman of the local salvage committee, has issued an urgent appeal to the business men of Montreal to permit routine salvaging of their old office records and out-of-date papers in files and vaults to alleviate Canada's waste paper shortage. They have the assurance, he says, that all confidential records are promptly and totally destroyed by the modern paper-shredding process in effect here. Quick and complete mutilation of all business papers designated by donors for immediate shredding is undertaken at local reprocessing plants, he says. In most cases waste paper contributions are completely reprocessed here or forwarded to out-of-town mills the same day, so great is the existing need for maintaining the country's supply of war-urgent products that it helps to produce. The Committee's appeal is being directed particularly to banks, trust and insurance concerns, brokerage houses, as well as to companies generally.

Brown & Bigelow Get Deduction Order

WASHINGTON, D. C., January 22, 1945—Brown & Bigelow, 1286 University avenue, St. Paul, Minn., commercial printers, and manufacturers of greeting cards and novelties, have been ordered to deduct 2,055,000 pounds of paper from permitted quotas during 1945, because the firm violated two War Production Board regulations, WPB's Compliance Division reported last week.

Order L-241 limits the tonnage of paper processed by commercial printers; L-289 limits tonnage of paper converted into greeting cards by publishers, WPB officials explained.

Brown & Bigelow do a large volume of advertisement printing, including calendars, desk pads, blotters and memo pads. The corporation violated the two WPB orders in 1943 and the first three quarters of 1944, the Compliance Division charged.

Expect Manpower in Paper Houses to Be Cut

Determination of Essentiality of Employment Likely To Reduce Male Help 10 Per Cent By March 15—Paper Shortage Grows—Salesmen Begin Year Auspiciously—Paper Group Holds Meeting.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., January 22, 1945—Of most critical importance in this area are efforts to determine the "essentiality" of manpower in paper jobber, supply and allied firms. War Manpower area districts 1 and 2 are to be placed on an added restrictive basis with employment ceilings cut 10% as far as male help is concerned. It is understood that a 5% ceiling cut must be made by February 15 and a 10% cut by March 15. If further regulations indicate that these new and curtailed ceilings refer to the paper supply and jobbing trades, the manpower problem will be genuinely acute—and may likewise have a considerable effect on the wastepaper situation unless the status of collectors, sorters and others is clarified.

Meanwhile, the paper market continues acute and "worrisome" with shortages developing ahead of all expectations. WPB curtailment orders on the uses of paper have simply renewed interest in the reality that all users of paper will genuinely have to prove the "end use" of the products they are attempting to buy. All lines of "military papers" are in heavier demand and increased shortage. Critical situations are extended in krafts, all sorts of wrapping and carton operations. Waste paper collections improved slightly during the week but more drastic programs to encourage the salvage of waste paper are expected daily.

Salesmen Begin Year Auspiciously

The western division of the Salesmen's Association of the Paper Industry had one of the most successful round table meetings in its long history on Monday noon, January 15, when attendance was unusually good at the Hotel Sherman informal discussion program. Officers of the division reported that the attendance augured well for the program of the Association and indicated that the efforts of the SAPEYES to coordinate all sales interests within the trade into a common procedure were getting results. The next formal meeting of the division, aside from the customary weekly "round tables," is on January 29 when Luke Johnsos, sales representative of the Zellerbach Paper Company and co-coach of the Chicago Bears football team will talk and will show hundreds of feet of movie films of professional football games. A record attendance of members and guests is expected according to Pat Patterson, vice president of the division. On February 5 the division will hold its pre-convention business session including reports of committees, nominating of officers and suggestions. Results of this meeting will be carried on to New York and the "war skeleton" meeting of the National Paper Trade Association by Burt Fisher, president and Pat Paterson, western division vice president.

Paper Group Features Social Program

Members and guests of tse Chicago Professional Paper Group started the New Year with a genuinely delightful evening's entertainment on Monday evening, January 15. The initial meeting was an entirely social affair with the emphasis on getting everybody acquainted with everybody else. Cocktails and dinner were served in the dining rooms of the Chicago Bar Association and under the chairmanship of Harry Weston, the group enjoyed a series of excellent treats provided by professional entertainers. Ladies were invited along with any business acquaintances which the members cared to bring to enjoy the splendid entertainment sponsored by the following firms, through the individuals listed:

William Mollenberg, Arabol Manufacturing Company; H. C. Moore, Beloit Iron Works; R. M. Upright, Dow Chemical Company; Ralph Findley, F. G. Findley Company; T. D. Evans, W. C. Hamilton & Sons; T. H. Ludlow, Johns-Manville Corporation; J. Frank Eaton, Kalamazoo Vegetable Parchment Company; George Davis, Manhattan Paste and Glue Company; M. E. Stern, National Starch Products, Inc., Earl Lenz, Paisley Products, Inc., W. S. Lyons, Rexford Paper Company; E. E. Montgomery, J. O. Ross Engineering Corporation; H. K. Chapin, Socony Vacuum Oil Company; R. Selner, Stein, Hall Manufacturing Company; A. A. Coffin, Titanium Pigment Corporation; Ben. W. Lewis, Witco Chemical Company and R. H. Bayer, Kupfer Brothers Paper Company.

The program was considered as most instrumental in creating a better feeling between all members of the group and helpful in increasing interest in the program for the balance of the year.

Approves Ratings on Special Papers

The Interstate Commerce Commission has found that classification ratings throughout the United States on soap-impregnated paper are not unreasonable or prejudicial and has dismissed the complaint of Burlington Shippers' Association et al vs. the Burlington Railroad. Complainants had sought the same ratings as apply on solid soap. No change was asked in carload ratings in southern and western classifications. The commission found, however, that the ratings on paper should continue to apply.

Sidney Roofing Gives Banquet

Approximately 250 employees of the Sidney Roofing and Paper Company Limited at Victoria were recently the guests of the company at a banquet and dance at the Empress Hotel, Victoria.

R. W. Mayhew, M. P., president of the firm, in his address emphasized the continued need for those on the home front to do their best. R. Bowkett offered a vote of thanks to the management on behalf of the employees.

Seated at the head table during the banquet were Mr. and Mrs. R. W. Mayhew, Mr. and Mrs. Logan Mayhew, Mrs. Alan Mayhew, Mr. and Mrs. W. T. Straith, Mrs. Isabel Senior, E. W. McMullen, Col. and Mrs. J. R. Kingham, Mr. and Mrs. L. Hemming, Mr. and Mrs. M. W. Thom, Mr. and Mrs. A. J. Saunders, Mr. and Mrs. W. McKinnon and Mr. and Mrs. R. W. Hamblett.

Superintendents Discuss Screen Problems

Northwest Division of A.P.P.M.S.A. Hold Meeting At Wausau—Interest Shown In New Patch Welder—Pulpwood Goal Set For Lakes Region — Describes School Forestry Work — Other News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., January 22, 1945—Screen problems on Fourdrinier paper-making machines provided the principal topic at the conclusion of a dinner attended by 62 members of the Northwest section, American Pulp and Paper Mill Superintendents' Association and its Industrial Affiliates division at Hotel Wausau, Wausau, Wis., Monday evening, January 15.

Most interest centered on the recently-developed patch welder manufactured by W. S. Tyler, Cleveland, Ohio, represented at the meeting by the speaker, Norman O. Weil, a salesman in the New York territory.

Mr. Weil, who is chairman of the Industrial Affiliates division, led the discussion of various methods tried by mills in making a punctured screen as good as new with the new invention, and gave details on how various mills had adapted means of improving its use.

Woven wires of various textures were on display. Mr. Weil said that before World War I industry depended largely upon Europe for varied wire cloths but that today America is ahead of Europe in the field.

Members were inclined to agree, after a number of superintendents had expressed their views.

Mr. Weil paid tribute to Fred C. Boyce, now of Wauwatosa, Wis., founder of the association, and explained that the association had invited the affiliates of the paper industry to form a division within the association, which he said had proved a most helpful plan to companies serving the paper industry. He was introduced by O. W. Callighan, Kalamazoo, Mich.

Local arrangements of the meeting were in charge of Harold A. Skinner, sulphite superintendent of the Marathon Corporation, Rothschild, Wis. The meeting was one of four, the others scheduled at Green Bay, Wis., Cloquet, Minn., and Ontario, Canada.

Among the division officers present were Roy I. Nilsen, Northwest Paper Company, Cloquet, Minn., Northwest section chairman; L. J. Smith, Combined Locks Paper Company, Combined Locks, Wis., first vice chairman, and R. A. Nugent, Nekoosa-Edwards Paper Company, Nekoosa, Wis., second vice chairman. Representing the national association were Charles Reese, Port Edwards, Wis., fifth vice president, and Roy H. Kelly, Rothschild, and Grover Keeth, Wausau, past presidents.

Pulpwood Goal Set For Lakes Area

The 1945 pulpwood production goal for the Lake States region, including Minnesota, Wisconsin, Michigan, Indiana, Illinois and Montana, has been set at 1,658,000 cords, according to an announcement by Curtis M. Hutchins, chief of the War Production Board's pulpwood production branch. Mr. Hutchins said that 16,000,000 cords will be needed this year to meet military and essential civilian requirements for paper and other wood pulp products.

An increase of about one million cords over all domestic wood receipts in 1944 is sought, or about two million cords over the original 1944 goal. The extra supply is needed, Mr. Hutchins said, to match the recent step-up of allied military operations.

Pointing out that war needs for pulpwood are at their peak, Mr. Hutchins called on farmers and farm workers and all full-time and part-time pulpwood cutters to help industry attain the 1945 goal.

"Use of every idle axe and saw now can produce the pulpwood for material that brings victory closer and friends and loved ones home just that much sooner," he said.

Elected to Head County Safety Council

Earl E. Edwards of the Wausau Paper Mills Company, Brokaw, Wis., was elected president of the Marathon County Industrial Safety Council January 15 at its annual luncheon meeting at Hotel Wausau, Wausau, Wis. He succeeds Gordon B. Lemke of the Employers Mutuals Insurance Companies.

Describes School Forestry Work

The January issue of The Wisconsin Conservation Bulletin describes the forestry program in Marathon county's rural schools. It reproduces a photograph of the first roadside planting on May 2, 1942.

F. B. Trenk, Madison, Wis., forester for the Wisconsin College of Agriculture, reporting in the Bulletin, said that back of the record of 45,000 trees planted by rural pupils in the county in 1943 and 90,000 planted in 1944 is "a story of 10 years' preparation with school boards, teachers and older rural youth."

The article credits much of this enthusiasm to many school gatherings arranged by Miss Irene Kronenwetter, county supervising teacher, at which Dr. H. O. Schneider, chairman of the Wisconsin Conservation Congress, showed motion pictures of outdoor life and spoke on conservation and forestry.

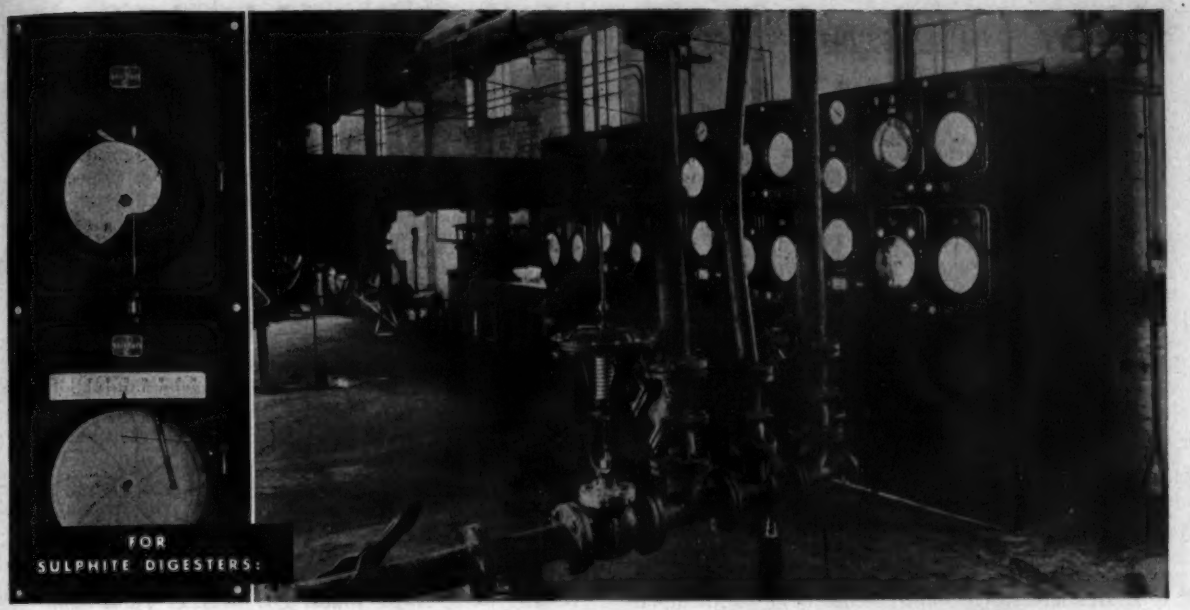
Mr. Trenk also related that Edwin Hill, a forester directing the federal soil conservation work in Marathon county, had checked school orders for trees according to species so that they would be adapted to the soil where the plantings were to be made.

Announce Tax Refunds

Refunds of federal taxes paid by Wisconsin individuals and companies for the fiscal year ending June 30, 1944, as announced last week by the Bureau of Internal Revenue, included: Trust of Frank C. Shattuck, Neenah, Wis., $10,618; Frank B. Whiting, Neenah, $24,636, and Nekoosa-Edwards Paper Company, Port Edwards, Wis., $6,339.

Discusses Stock Preparation

A discussion on "Stock Preparation and its Relation to Paper Machine Operations" was given January 17 at the seventh meeting of the non-technical course in pulp and paper for production workers in the Menasha High School auditorium. Taking part were F. X. Kreiling of Thilmany Pulp and Paper Company, Kaukauna, Wis.; I. J. Stafford of the Neenah Paper Company, Neenah, Wis.; Harold Johnson of the Fox River Corporation, Appleton, Wis., and A. Wiberg of the Gilbert Paper Company, Menasha.



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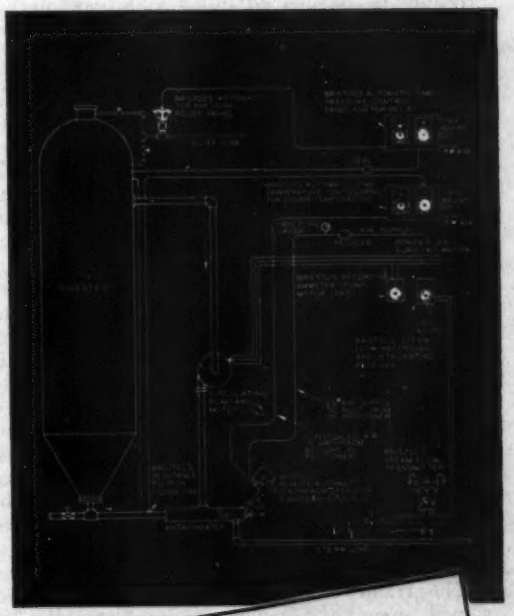

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New England Section Discusses Machines

The New England Section of the Technical Association held their January meeting at the Hotel Kimball in Springfield, Mass., Friday night, January 19, 1945. About 75 were present to hear Charles S. Adams of Rice Barton & Fales, and P. E. Sinclair of the Sinclair Company discuss the post-war paper machine. Leon Demming of the Reliance Electric Company was to speak but was unable to attend because of illness; the chairman, W. L. Foote, read his paper.

Mr. Demming stated in his paper that generally most of the new developments are not completely refined for commercial installations and that it is quite probable that they will not be on the market soon. The pressure of war work has prevented all but experimental work on the part of the machinery manufacturers. However, when new equipment or renovation is proposed, it would be well to have all concerned with its operation be acquainted with the project as its success is dependent to a considerable extent on the operating personnel.

Drives have been improved but before contemplating a complete new installation, a survey should be made of the old units since in many instances it may be possible to incorporate them into the new layout with a resulting savings.

C. S. Adams emphasized in his opening remarks that he did not think that there would be any radical changes in paper machine design. The frames would probably be heavier to offset vibration, more antifriction bearings would be installed, more flexible drives developed, and probably more utilization of improved control equipment. It is not expected that developments resulting from the war will greatly influence the basic construction of the machine and it is doubtful whether the new metals will replace those now used except for specific units. The most pronounced trend is the increasing cost of machinery.

The fourdrinier part may be made removable to facilitate maintenance rather than just wire changing. The shake will be either the MacDonald or split-rail type, improved in respect to better bearings. Improvements to the press section will probably be contained in more definite weight control using hydraulic means to accomplish this. The dual press will be advantageous when there is limited space but may not be completely satisfactory for high grade papers because of the tendency toward creating two-sided sheets.

Mr. Adams is of the opinion that cast iron is still the preferred metal for drier shells, their efficiency being improved by provisions for a clean bright surface. Changes in the drier section will result in quieter operation and more antifriction bearings will be used.

The frames throughout the machine will be designed to simplify maintenance problems, but basicly no radical changes can be expected.

Mr. Sinclair confined his remarks to the paper machine wire and water removal. Paper has been and will be made on a wire and aside from mechanical changes, the most that an operator can expect is more efficient means of water removal. Because of the tendency of the conventional table rolls to return water to the wire, and this is especially true of machines operating at high speeds, there will be greater use made of the fin and dandy type of roll. In addition to these installations, a dandy roll will be important in compacting the sheet. Reference was made to the successful operation of a dandy roll driven at approximately the same speed as the machine. A motion picture was shown of this installation. By using the driven type of dandy roll, it is expected that difficulties in placement of the dandy will be removed; in fact may result in the use of two dandys, one toward the slice and the other toward the couch.

After the speakers completed their talks, a discussion was held that was of interest to all who attended.

Those in Attendance

Those who attended the meeting were as follows: C. S. Adams, J. H. Aid, P. W. Ayers, J. P. Bainbridge, P. S. Barnhart, N. I. Bearse, R. T. Bingham, J. H. Browne, J. F. Carroll, C. H. Child, H. C. Cookingham, Mr. and Mrs. L. N. Crouse, David Currie, H. W. Dakin, T. Delaney, Paul Donagby, R. H. Doughty, H. M. Federhen, Thomas Flaherty, W. L. Foote, L. D. Frisbie, W. S. Gommie, Wm. Grogran, D. H. Gutermann, P. B. Holden, S. L. Hollis, Fred Holmes, A. L. Holt, H. D. Johnston, D. E. Jones, Nard Jones, Dr. Werner Kaufmann, Harry Keating, P. J. Kennedy, Helen U. Kiely, R. E. Kilty, J. C. Mathews, F. J. McCormick, John Morrone, J. J. O'Brien, J. F. O'Leary, R. S. Packard, L. B. Rogers, F. W. Schneider, Homer Sinclair, P. E. Sinclair, C. P. Slocum, H. P. Smith, Leonard Smith, E. W. Strecker, George Thompson, A. P. Wagenknecht, S. K. Warner, Wm. R. Willets, F. H. Williams, G. E. Williamson, S. M. Worthington, Jr., and Wm. Woosnam.

Offers Consulting Laboratory Service

Dr. L. H. James, who is opening a consulting office and laboratory in industrial microbiology at 189 West Madison street, Chicago 2, Ill., will specialize in bacteria, yeast and mold in foods and feeds; fermentation; microbiological enzymes; sanitation; disinfectants and antiseptics.

Born in Nebraska and raised in Iowa, Dr. James was educated at Iowa State College, Ames, receiving the B. Sc. in Bacteriology in 1921. He took post graduate training at Yale University where the Ph. D. was awarded in 1927. At Yale 1926-1927 he was appointed Sterling Fellow in Research.

Early work was in the Bureau of Chemistry (now Food and Drug Admn.), and included analyses and research on food preservation.

Since 1937 he has been professor of Bacteriology and head of the Department at University of Maryland, College Park, and director of numerous research projects, including studies on antiseptics and disinfectants, factory sanitation, frozen, canned, dried and fermented food products.

Twenty years experience includes close contacts with industry, the Food and Drug Admn., the Federal Trade Commission, and the U. S. Patent Office. He recently directed investigation of war-time problems in industrial microbiology for the Office of Scientific Research and Development.

Certain investigations begun at the University will be continued in the new laboratory by Dr. James. The work will include the control of bacteria, yeast and mold in factory processes, disinfectants, industrial fermentations, and the microbiology of various types of foods products.

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Why We Should Simplify Our Archaic Standard Bases for Paper and Board

By George G. Cobean, Pres. Bulkley, Dunton Paper Co., S. A.

Abstract

The simplification of the present standard bases for paper and board has been under consideration for some time. In this article Mr. Cobean, a well-known executive with broad experience in both the domestic and foreign paper and graphic-arts industries offers convincing arguments in favor of the change.

When in 1787 the Continental Congress considered the adoption of the dollar as the monetary unit of the United States some congressmen were opposed to the measure. Today this seems almost incredible since we all realize the tremendous advantages of a monetary unit based on the easy and simple decimal system, as against the ancient, complicated and cumbersome English system with its guineas, pounds, shillings, pennies and farthings. A guinea, as you know, is divided into 21 shillings, 252 pennies, and 1,008 farthings. This sounds almost as complicated and just as senseless as our present standard bases for paper measurements.

The lawmakers who argued against the adoption of the dollar were afraid that the new system would be hard on people used to the old way of figuring in pounds, shillings and pennies. Some argued that business houses would have to change their books and that many mistakes would be made if the "new fangled" money was adopted. Today the opponents of the greatly simplified basic standard of 25 x 40/1000 are using similarly weak arguments. One argument is that the change would involve the necessity of re-education. Another that it would mean re-writing WPB Order L-120, which, all agree, is sufficiently complicated.

Job Much Simpler Than It Seems

It is true that the adoption of the new standard would involve both re-education and re-writing of Order L-120, but it is equally true and evident that the job of re-education would be much simpler than it seems, and only those who fail to grasp the real simplicity of the proposed standard will continue to oppose it. Anyone truly interested in the subject can convince himself of the great advantages inherent in the simplified standard, and only those who approach the subject with a closed mind will not see the light. The argument against changing Order L-120 because it is sufficiently complicated defeats itself. The very fact that L-120 is so complicated is largely due to the antiquated and complex system on which our standard measurements are based. Simplifying the system, as the proposed change is designed to do, would automatically simplify the order itself. Everyone must agree that this would be a blessing to the entire paper and graphic-arts industry.

Has Been Advocated Many Times

A uniform, simplified standard of measure of basic weights for all paper and board has been advocated many times. About a year ago the Joint Committee on Government Relations of the Commercial Printing Industry proposed again the uniform system whereby all paper would be measured on the basis of 25 x 40 inches with a standard sheet count of 1000, conveniently expressed as 25 x 40/1000. Since the proposed basic size of 25 x 40 inches equal exactly 1,000 square inches, and the standard sheet count of 1,000 is likewise a decimal figure, it is obvious that estimating paper or board size on the new basis would become exceedingly simplified. Today paper manufacturers, converters and users have to struggle with such standard bases as 17 x 22/500, 18 x 31/500, 20 x 24/500, 24 x 36/480, 20 x 25/500, 20 x 26/500, 25 x 38/500 and many others including such monstrosities as 22½ x 28½/500 and 25½ x 30½/500. If anyone is able to keep in mind all these figures let alone use them in his daily work, there should be no trouble in re-educating him. The job of re-educating would be like teaching the alphabet to Shakespeare.

As far back as 1917 the National Bureau of Standards and the Government Printing Office adopted the 25 x 40/1000 basic standard and proposed its adoption to the entire paper industry. The industry, however, did not accept the proposal. For people who believe in saving time, who strive for efficiency in business, and who are not afraid of sweeping away the useless cobwebs of tradition that cover our cumbrous practice of measuring paper and determining basic weight, it must seem incomprehensible that there should be any real opposition to the proposed simple, sound and logical system.

An Example of Present Practice

Let us take for example the practice now prevalent in buying and selling Fancy Box Covers, Friction Glazed and similar papers. These are generally made, sold, and used in rolls, yet their price is based on hypothetical reams and sizes varying with the different grades. The manufacturer of such papers buys his coating stock on the basis of a theoretical 500 sheet ream, size 20" x 24". When he sells his product the unit pricing basis capriciously changes to another theoretical 1000 sheet ream, size 20" x 26". And the paper is still uncut and in rolls! The confusion and mistakes resulting from this idiotic system of figuring are well known to members of that branch of the industry.

Nor are the mistakes and confusion limited to that one particular branch. Apart from the fact that untold man-hours of estimating time would be saved by the new system for mills, printers, packagers, merchants, jobbers, etc., the possibility of errors would be minimized, and estimating would become child's play compared to the present cumbersome and intricate system based on dozens of different measurements and varying sheet counts.

Would Open Way to Further Simplification

The adoption of the 25 x 40/1000 standard would open up the way to further simplification of our present archaic weights and measurements. Once the first step was made in the right direction and people discovered the amazing simplicity of the decimal system as against the clumsy complexity of inches,

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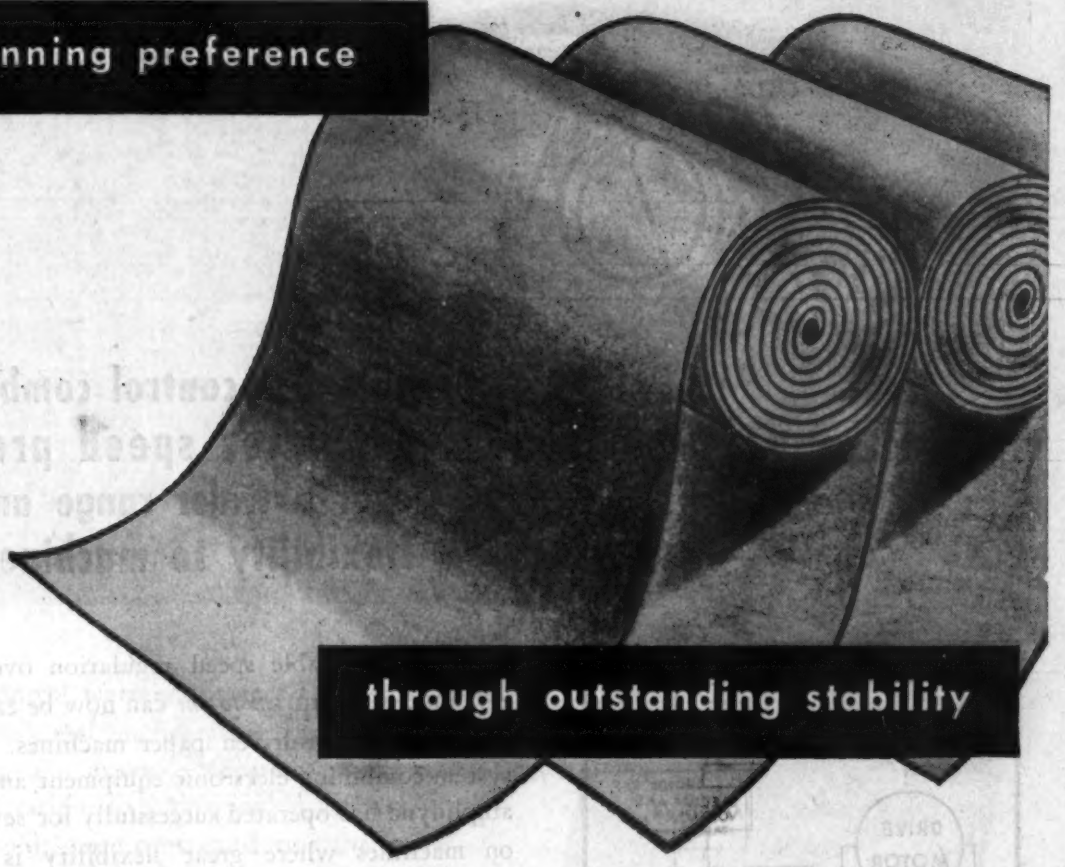

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Here is a resin for the production of wet-strength paper combining every desirable quality. P-426 Beckamine can be applied in the beater, fan pump, or head box, or directly to the sheet. It's a time-saver because no pre-treatment is required. Its low price, too, keeps down production costs. And it definitely eases storage problems, for its stability is outstanding. For further information about this exceptional urea-formaldehyde resin write direct to the Sales Department.

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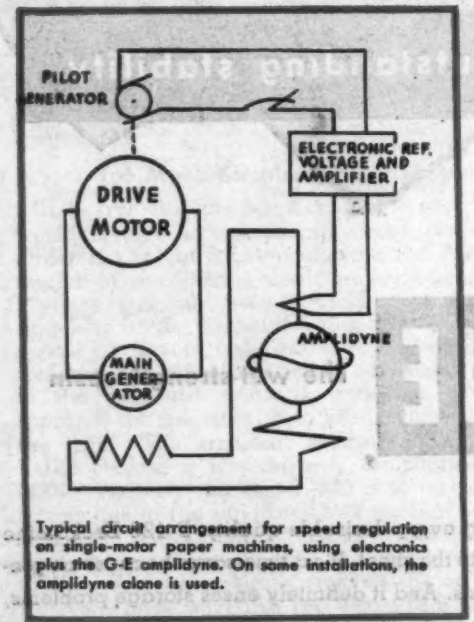
This G-E control combination regulates speed precisely over a wider range and adds flexibility to machine usage



Typical circuit arrangement for speed regulation on single-motor paper machines, using electronics plus the G-E amplidyne. On some installations, the amplidyne alone is used.

PRECISE, stable speed regulation over a speed range of up to *ten to one* can now be easily maintained on motor-driven paper machines. A control system combining electronic equipment and the G-E amplidyne has operated successfully for several years on machines where great flexibility is required. Whether *plodding* on boxboard or *racing* on tissue, the machines hold the desired speed with high precision!

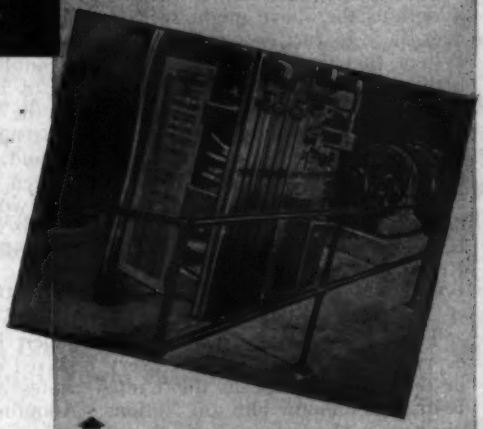
Ideal for new installations, the system can be applied to most older machine-drives where speed is regulated by voltage control. It is particularly effective in giving extra stability at low speeds. Unusual simplicity, both as to circuits and equipment, helps keep operating continuity high and maintenance costs low.

GENERAL ELECTRIC

BOARD TO TISSUE

G-E drive motor for paper machine of Mead Corporation, Chillicothe, Ohio. Electronics plus the G-E amplidyne gives highly responsive voltage control, so that speed regulation is maintained over an eleven-to-one range.

All types of paper machines, Fourdrinier or cylinder, single-motor drive or sectional-motor drive, can be equipped with G-E speed regulation. Installations show higher output, fewer breaks, and flexibility to permit making a wider range of grades of paper.



Control panel for single-motor paper machine drive, showing G-E amplidyne at lower left. Motor-generator set furnishing d-c energy to drive motor in background.

Special control features to meet the needs of individual machines or operating cycles are easily incorporated. For example, constant-current control during acceleration can be provided by the same amplidyne that holds speed constant during the run.

The new control system helps back up the well-proved dependability of G-E drive motors and generators. It is one of a family of modern G-E controls applied to sectional drives, auxiliary wet-end drives, and to individual drives for supercalenders and winders.

Whatever your problem, you'll find our application engineering combines advanced electrical methods with a broad background of practical experience in paper-mill electrification. *General Electric Company, Schenectady 5, N. Y.*

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feet and pounds, there would probably be a popular demand for the adoption of the metric system throughout the paper and graphic-arts industry. I do not hesitate in saying that the adoption of the metric system would be one of the greatest boons to these industries.

The metric system, which as you know is on the decimal basis, is not only far, far simpler but also much more accurate than our present way of figuring. Figures in the metric system can be reduced indefinitely by the mere shifting of the decimal point and without running into such terrible fractions as 1/16, 1/32, etc.

A Brief Description

For the benefit of those who are not familiar with the system as applied to paper and board, let me describe it briefly:

The base weight for everything from tissue to board is stated in terms of grams of weight of one square meter of one sheet of paper or board. (1 lb. = 453.6 grams and 1 sq. meter = 1,550 sq. inches.) The metric system being on the decimal basis, it is extremely simple to determine the ream weight of any size by first ascertaining the area of the sheet in centimeters (1 centimeter = .3937"; 100 centimeters = 1 meter) then multiplying these by the number of sheets in the ream, and finally pointing off 4 decimal digits. (10,000 sq. centimeters = 1 sq. meter.) The resulting figure shows the weight in kilograms per ream. (1 kilogram = 2.2046 lbs.)

To anyone not used to working with meters and kilograms the above might seem complicated. However, it is in fact so much simpler than our present system, that the average person equally familiar with both can save more than three-quarters of his time in calculating weights and measures on the decimal basis as against the other system. The relationship between kilogram, centimeters and feet and pounds may be compared to that existing between pounds and shillings and dollars and cents. Who would for one minute doubt that our monetary system is simpler, better and more efficient than the one used by the British?

A Stupid Waste of Man-Hours

The metric system, not only for paper, but for every commodity, is used in every civilized country in the world except in the United States and the British Commonwealth of Nations. Adopting it at this time in the paper and graphic-arts industry would be a revolutionary change. The industry may not be ready for such a drastic change coming without a transition. However, the proposed simplified standard of 25 x 40/1000 which introduces the elements of the decimal system is very definitely a step in the direction for which we should be headed. Once we made that step it would become evident to the members of our two great industries that the millions of man-hours wasted in the past in stupid, complicated calculations could have been saved and turned to much better use.

Join N. E. Paper Merchants Assn.

BOSTON, Mass., January 22, 1945 — Walter R. Guild, managing director of The New England Paper Merchants Association, announces the addition of two new members, as of January 1: Atwood Paper Company, 284 Montello street, Brockton, Mass., and Industrial Papers, Inc., 400 Grove street, Worcester, Mass.

Rejoins Newsprint Service Bureau

R. S. Kellogg, secretary of the News Print Service Bureau has sent out the following notice which is self explanatory:

It is with much pleasure that I am able to announce that G. A. Ware has rejoined the News Print Service Bureau as assistant secretary.

"Nearly all Bureau members will remember the excellent work he did from 1919 to 1930 in developing cost accounting methods in both mills and woods operations for the North American news print industry. The standards set at that time have been constantly referred to not only on this continent, but in many other places where news print mills are located. In addition to this work Mr. Ware was also assistant secretary of the Bureau during that period of his service.

"During the past fourteen years he has been working in a still larger field, conducting a cost engineering service through the American Paper and Pulp Association for all branches of the pulp and paper industry. This consulting service will be continued and his advice and assistance will still be available to those manufacturers who require such help.

Mr. Ware's return to the bureau now brings him back with an increasingly broad understanding of manufacturing processes and methods which will be of special benefit to news print manufacturers everywhere."

Paper Stationery Deleted

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 22, 1945 — The deletion of paper stationery and papeteries from List B of Conservation Order M-241-A (Paper and Paperboard) was intended to remove these items entirely from the order's restrictions, the War Production Board announced last week through issuance of Interpretation 4 to the order.

The deletion, on December 19, 1944, raised the question whether the items remained subject to the order's Paragraph (e) (1). In stating that they did not, the interpretation added:

"It follows that the mere packaging of correspondence sheets with envelopes is not regulated.

"However, since envelopes, in all styles except expansion types, are still included in List B, a converter may not consume in manufacturing envelopes more than 110 per cent of the amount he consumed in the manufacture of envelopes in 1942. There is no prohibition in Order M-241-A against a converter buying envelopes from other manufacturers for resale either as envelopes or for use in making up papeteries."

Sales of Paper and Paper Board Expand

Wholesalers' sales of paper and paper products for the 11 months of 1944 through November totaled $86,371,000, an increase of 2 percent over the corresponding 1943 period, the Bureau of Census reported last week, based on figures of a representative group of companies.

Sales for November 1944, by the same group amounted to $6,048,000, a decline of 6 percent from October, and 7 percent less than for the same month, 1943.

Inventories by a reporting group showed a 3 percent decrease in November, from October, and were 5 percent less than for the same month last year.

RAYCO WET-LAP PULP HAS CONTROLLED QUALITY

Send for Technical Data Sheet -

THIS service on Rayco Linter Cotton in wet-lap form has been developed by Railway Supply to help paper makers meet their production schedules.

Rayco Linter Cotton Pulp reaching paper mills ready for the final beater operation, saves the time and cost of sorting, pre-beating, cooking and bleaching.

Quality control standards set up for the production of Rayco Wet-Lap assure high color and uniformity.

The virgin (first cut) linter cotton used for Rayco Wet-Lap is an ideal raw material because it is free from the many objectionable contaminating impurities so prevalent in many of the various grades of rags available today. It is completely pulped and bleached to produce a white pulp of characteristics comparable to the best rag pulp.

Technical data sheet giving full information on the physical and chemical characteristics of Rayo Linter Cotton Wet-Lap Pulp will be sent promptly upon request.

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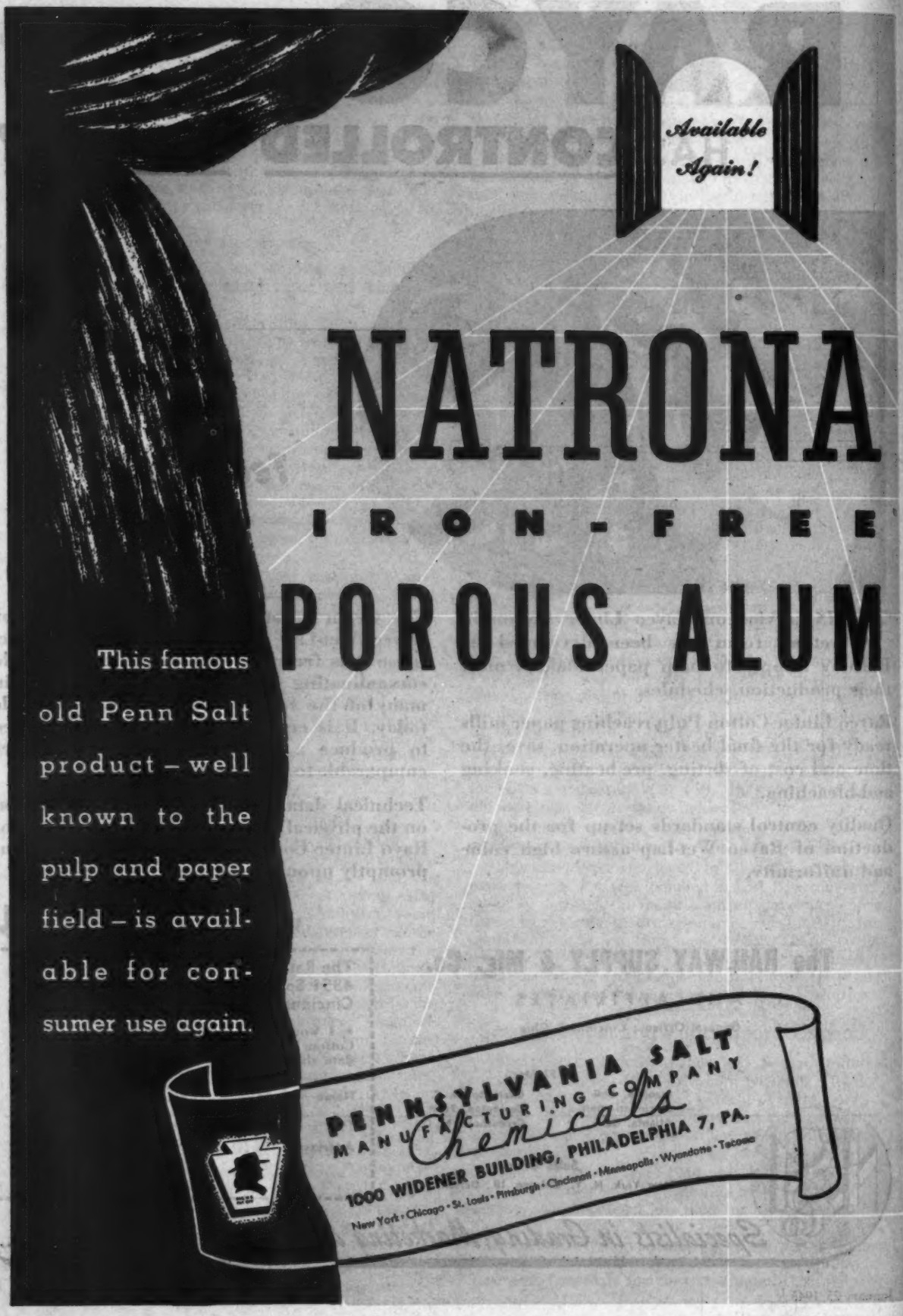
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Winter Harvest

SNOW—sleet—rain. Nothing must delay the production of pulpwood to help meet today's critical need for more paper. In spite of winter conditions that often halt normal logging operations, the industry is working on year 'round schedules.

In the steady movement of wood from forest to mill, dependable operation of machinery for hauling and trucking plays an important part. And operators everywhere know that trouble-free engine performance is best assured with proper lubrication. That is why so many use Texaco.

Texaco D-303 Motor Oil and *Ursa Oils* are ideal for heavy-duty gasoline engines and high-speed Diesels. Outstanding among the characteristics of these fine oils are the properties of *detergency*, which keeps piston rings and engine parts clean; and *dispersion*, which holds deposit-forming materials in suspension until drained at oil-change time. These oils protect modern bearings and prevent scuffing of rings, pistons and cylinders.

Texaco transmission and differential lubricants, too, are widely used . . . to assure quieter-running, longer-lasting gears.

So effective have Texaco lubricants proved in service that definite preference for them has been established in many fields, a few of which are listed at the right.

Texaco Lubrication Engineering Service is available to you through more than 2300 Texaco distributing points in the 48 States.

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★ More Diesel horsepower on streamlined trains in the U. S. is lubricated with Texaco than with all other brands combined.

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FOR THE PAPER INDUSTRY

TUNE IN THE TEXACO STAR THEATRE WITH JAMES MELTON SUNDAY NIGHTS ★ METROPOLITAN OPERA BROADCASTS SATURDAY AFTERNOONS

Obituary

Alfred A. Curtis

WILMINGTON, Del., January 22, 1945—Alfred A. Curtis of Graystone, Newark, died January 15 at his home in Newark.

He had celebrated his ninety-sixth birthday anniversary on October 20. For many years he was head of the Curtis Paper Mills of Newark.

Mr. Curtis, known as the grand old man of Newark, was born in Newton Lower Falls, Mass., but had lived in Newark since childhood.

His father was the founder of the Curtis Paper Company, one of the oldest paper manufacturing companies in the country.

Surviving are four grandchildren, Alfred A. Curtis of Los Angeles, Calif., Mrs. Dorothy Curtis Storrs of Hartford, Conn., Mrs. Sally Curtis McCoy of Wilmington, and Staff Sergt. Frederick Lindsay Curtis, with the ordnance department of the Army Air Forces, overseas; a sister, Mrs. Delaware Clark of Wilmington, and a brother, former Chancellor Charles C. Curtis who now makes his home with a son, Frederick Curtis in Holyoke, Mass.

Five great grandchildren also survive.

Mr. Curtis had been in failing health for some years. His death was due to his advanced age.

The Curtis Paper Company still is one of the leading industries of the state. The old original mill on White Clay Creek was built by the Mateer brothers in 1810. In 1848, two brothers, S. M. and Frederick A. Curtis, came from Massachusetts to Newark, then a tiny village, and purchased the plant and operated it until 1873, when Alfred Curtis, son of Frederick and then a young civil engineer in the Middle West, joined them here and was soon made superintendent of the plant.

Mr. Curtis received his education at Newark Academy and at the Polytechnic College in Philadelphia, from which he was graduated as a civil engineer. He was employed as an engineer in the construction of the Pittsburgh-Connelsville Railroad and on an extension of the Baltimore and Ohio Railroad in Chicago.

He took his place in the paper mill three years after his graduation from college.

Mr. Curtis became president of the company in 1911 when the company was reorganized and incorporated under the title of Curtis and Brother, Inc., with his son, F. Lindsay Curtis as secretary-treasurer. The son died in 1922.

Archibald Cree Scrimgeour

ROCKVILLE CENTRE, N. Y., January 22, 1945—Archibald Cree Scrimgeour, 78, paper manufacturer and former general manager of the New York office of the Central Paper Company, Muskegon, Mich., died here January 15 in a nursing home. He lived at 29 Newton avenue, Baldwin.

Mr. Scrimgeour, born in Brooklyn, became associated with the Central Paper Company more than 50 years ago, and at one time was vice president and secretary of the Manufacturers Paper Company, a subsidiary. When the subsidiary later was absorbed into the parent organization he was appointed general manager of the New York office.

A daughter, Jean P. Scrimgeour, survives. Funeral services were held Wednesday, January 17, at his home.

William C. Dawson

William C. Dawson, age 68, died January 5, 1945, at Claremont, N. H. For 37 years Mr. Dawson was treasurer and general manager of the Claremont Paper Company Mills at Claremont, N. H., from which he retired in 1941 because of ill health.

For many years he was very active in the civic, industrial and financial affairs of Claremont and was a director of the Peoples National Bank, a former trustee of the Claremont Savings Bank, and past president and director of the Claremont Building and Loan Association.

He was born in Bayside, N. J., February 8, 1876 and was a member of the Masonic Lodge and the Baptist Church.

Survivors of his immediate family are his wife, Katherine V. Dawson, and daughter, Katherine Gianferante of Greeley, Colorado, and one son, Richard C. Dawson, who is a chemist with the Claremont Paper Company.

Lieut. M. R. M. Kane

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., January 22, 1945—Announcement has been made that Lieut. Matthew R. M. Kane, 24, only son of Matthew R. Kane, vice-president in charge of woodlands for Price Bros. and Co. Limited, of Quebec, has been killed in action in Holland. Educated at St. Patrick's College, Ottawa, and Queen's University, he enlisted in 1942, trained at Brockville and Camp Borden, and went to England in 1943. He served with the Canadians on the Western Front until receiving the wounds which caused his death.

William M. Myers

[FROM OUR REGULAR CORRESPONDENT]

TERRE HAUTE, Ind., January 22, 1945—William M. Myers, 72 years old, president and chairman of the board of directors of the Wabash Fibre Box Company here, also president of the Terre Haute First National Bank, died in a local hospital late last week following a brief illness. He was treasurer of the Indiana State Teachers College and a director of the local Chamber of Commerce. He also was a member of the board of directors of the Indiana State Chamber of Commerce, and had served two terms as its president.

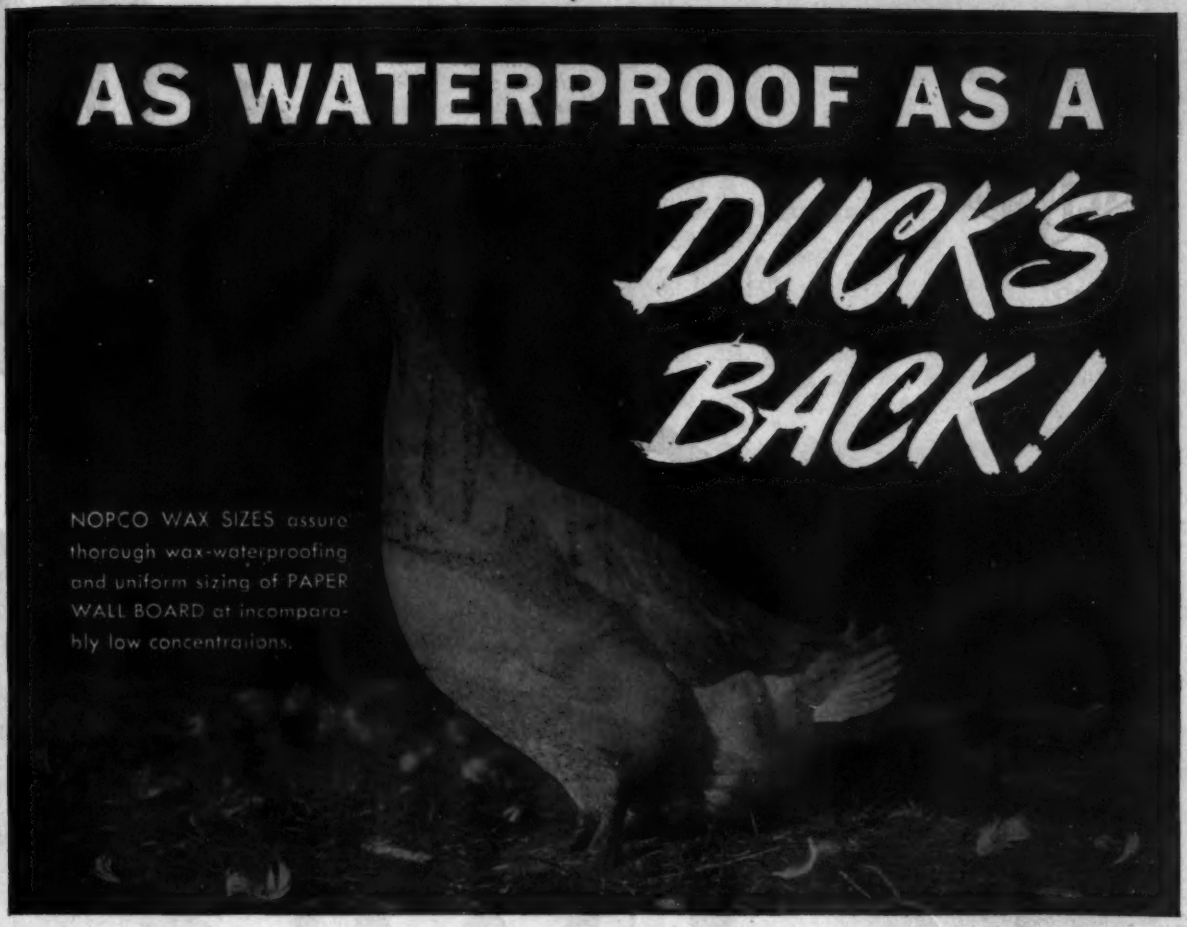
Rules on Use of Shipping Sacks

Use of more paper shipping sacks than were used in 1944 for packaging such animal feeds as fish meal, fish scrap, tankage and meat scrap is prohibited by the amendment to Paper Shipping Sack Order L-279 announced today by the War Production Board.

The amendment also prevents use of paper shipping sacks for packaging items by anyone who did not use sacks for this purpose in 1944, officials said. However, persons who formerly used automatic machinery for packaging in paper shipping sacks may continue to do so, in quantities not to exceed that used in 1944.

This amendment does not affect paper shipping sacks used for delivery to the Army, Navy, United States Maritime Commission or War Shipping Administration. Neither does it apply to empty shipping sacks shipped by the Foreign Economic Administration for the use of the armed services.

AS WATERPROOF AS A DUCK'S BACK!


NOPCO WAX SIZES assure thorough wax-waterproofing and uniform sizing of PAPER WALL BOARD at incomparably low concentrations.

Both laboratory tests and actual mill runs show that difficulty is commonly met in obtaining uniform sizing with 1.3% size or higher. NOPCO products, however, meet waterproofing specifications at concentrations as low as .8%. (Based on dry solids weight to air dry fibre weight.)

NOPCO wax sizes adhere to the fibres because they are precipitated by the alum, thus assuring better retention of the wax while the stock is on the wire.

Protection from water and moisture — protection from buckling, shrinkage or expansion—these are among the many benefits you may expect when you wax-waterproof paper board, insulation board, paper containers and other paper products with wax sizes made with NOPCO 2251-B or use NOPCO 2252 — a ready-made paraffin wax emulsion for mills of more limited output.

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A wax emulsifier for mills that make their own wax sizes
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If you are faced with a wax-waterproofing problem in your product, mail coupon below.

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Please send technical data on use of NOPCO 2251-B Wax Emulsifier or NOPCO 2252 Wax Size.

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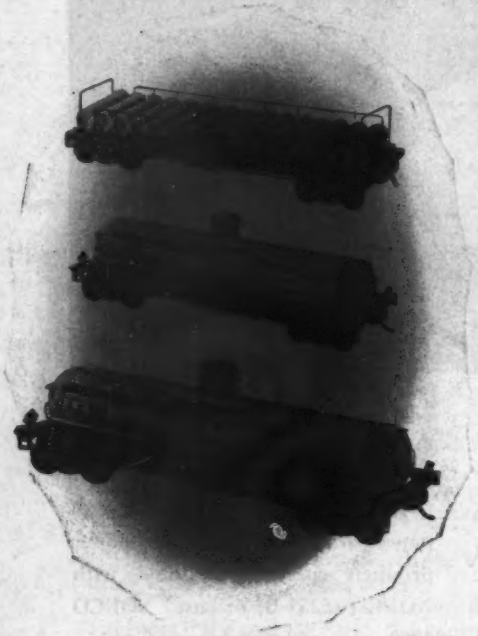

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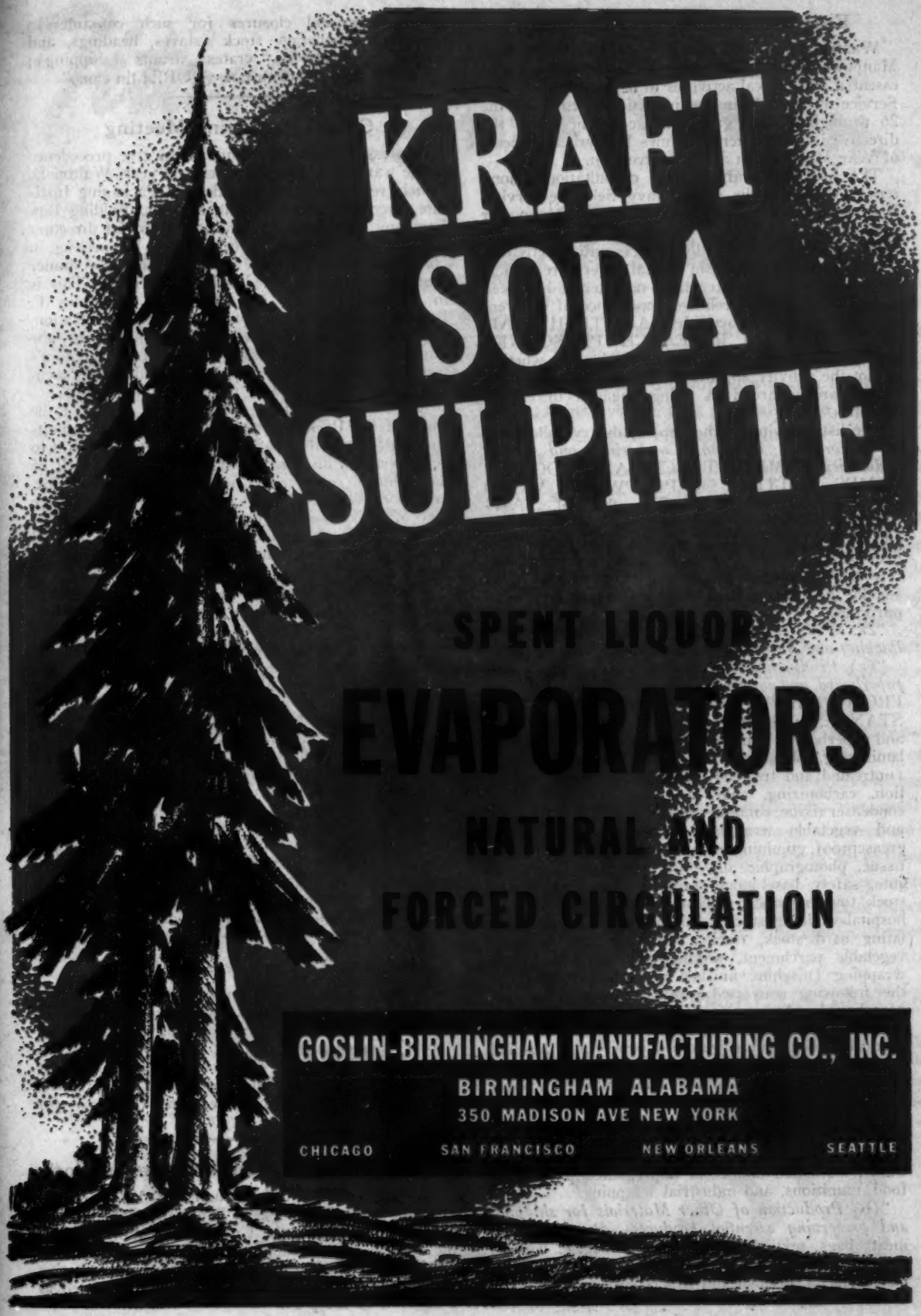
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Essential and Critical Activities

WASHINGTON, D. C., January 22, 1945—The War Manpower Commission last week announced a list of essential and critical activities to be used by Selective Service as a guide in the induction of men in the 26 through 29 age group, in accordance with the directive issued earlier by James F. Byrnes, director of War Mobilization and Reconversion.

The list was drafted after consultation among representatives of the Army, Navy, Selective Service, War Production Board and the War Manpower Commission.

All activities in this list are essential activities. Those activities printed in capital letters are critical activities. With one exception, no attempt has been made to indicate the relative importance of different occupations in these activities. ALL TECHNICAL, SCIENTIFIC and RESEARCH PERSONNEL engaged in any of the activities in the list, whether or not the activity appears in capital letters or small letters, are regarded as being engaged in critical activities.

The list applying to the paper industry follows:—

"7. *Forestry, Logging, Lumbering, and Forest Industries*—TIMBER TRACTS AND LOGGING CAMPS, CUTTING OF PULPWOOD, WOOD FOR TANNING EXTRACT, charcoal, SAWMILLS, VENEER, cooperage-stock, PLANING, and PLYWOOD MILLS, raising of tung oil trees; fire prevention, pest control; forest nurseries and reforestation services; gathering of gums and barks for the manufacture of naval stores and medicinal purposes.

"27. *Production of Pulp, Paper and Materials for Packing and Shipping Products*—

"(a) *Production of the following pulp, paper, paperboard, and converted products*—PULP (MADE FROM PULPWOOD AND OTHER SUBSTANCES); the following types of paper stock and paperboard: Absorbent for impregnation, asphalt laminating, blueprint; box board; butcher papers (untreated and treated), cable and electrical insulation, carbonizing, chart and map (Government), condenser tissue, container board, drafting, filter, fruit and vegetable wrapping tissue, gasket, glassine, greaseproof, gumming, mandrel winding stock, pattern tissue, photographic and other sensitized, rope and jute, safety base stock, sanitary (sanitary napkin stock, toweling stock, napkin stock, toilet tissue stock, hospital wadding stock), shipping sacks stock, tabulating card stock, tracing, twisting and spinning, vegetable parchment, waxing, wet machine board, wrapping (machine finished and machine glazed); the following converted products from paper and paperboard: Ammunition and shell cases, carbon, envelopes used for shipping and preserving essential products, fiber drums, gummed paper tape, hospital wadding, laminated waterproof and heavy crepe, liquid tight containers and closures, mandrel wound, mesh cloth and fabrics, napkins, nested paper cups, nested paper food containers (excluding paper plates), paperboard boxes and shipping containers, sanitary napkins, shipping sacks, toilet tissue, towels, twine, waxed laminated and resin impregnated papers for food, munitions, and industrial wrapping.

"(b) *Production of Other Materials for shipping and preserving essential products*—Bagging, jute, meat; bags, textile (except laundry bags); barrels, metal; baskets (Climax, fruit, vegetable); box shooks; boxes (metal, wooden and paperboard); cable, fiber; cans; cases, packing; containers (glass, metal, and wood; caps and closures for such containers); cooperage; cooperage stock (staves, headings, and hoops); CORDAGE; crates; drums (shipping); excelsior; gummed cloth tape; ROPE; tin cans."

Cancel Packaging Meeting

Expressing their determination to give precedence to the war effort during this crucial year, Walton D. Lynch, recently-elected president of Packaging Institute, Inc., and vice president, National Folding Box Company, has announced that the board of directors unanimously voted at their January 10 meeting in New York, to abandon the regular semi-annual dinner meeting, previously scheduled for April 18. This is in keeping with the proposal made by James F. Byrnes, director of the Office of War Mobilization, that all national conventions be banned for the remainder of 1945 to lessen the load on the nation's transportation systems and thus provide more facilities for the movement of troops and supplies.

At the same meeting, the directors reviewed the work of the Packaging Institute's principal committees and gave consideration to the major activities to be undertaken during the current year. On behalf of the technical committee, Chairman C. A. Southwick, Jr. reported the establishment of twenty-five tentative sets of specifications, covering a wide variety of packaging materials, which it is hoped may be released for the information and guidance of all Institute members.

Chief among the projects proposed by President Lynch for 1945 were: (1) completion and distribution of the Glass Packaging Manual, which has been in preparation for sometime under the direction of H. A. Barnby, of the Owens-Illinois Glass Company; (2) the development of basic statistics showing the importance of the Packaging Institute in American industry; (3) a series of conferences, with the chief executives of all trade associations, in the package materials, producing and machinery fields , as well as those representing the principal package-using industries, with the objective of compiling and publishing an accurate and comprehensive history of package development and testing procedures during World War II; and (4) the forming of a small but qualified Package Institute Advisory Board, which, meeting periodically, would serve as a valuable source of accurate and unbiased information on all phases of package design, production and use.

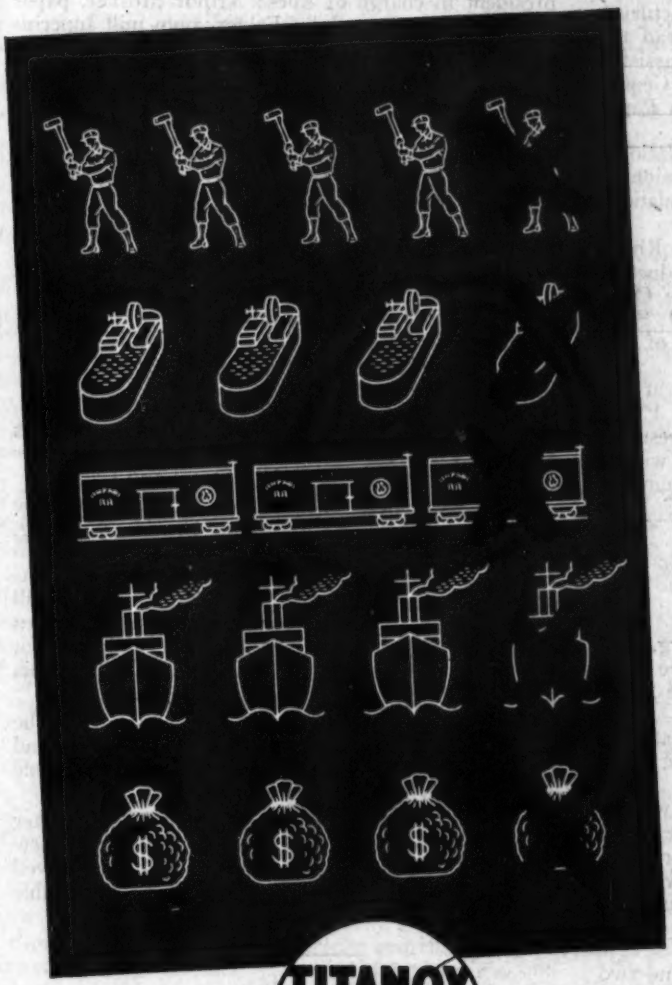
Returns To E. D. Jones & Sons Co.

E. D. Jones & Sons Company, Pittsfield, Mass., announce the return, and appointment of Arthur P. Wagenknecht as chief engineer. Prior to Mr. Wagenknecht's association with Joseph T. Ryerson & Son, Inc., during the past 4½ years as sales engineer covering the New England and New York territory, he was with E. D. Jones & Sons Company for seventeen years.

NLB Takes Vote at Imperial Paper Work

HUDSON FALLS, N. Y., January 15, 1945—A vote of employees at the Imperial Paper and Color Works resulted in a win for the United Mine Workers over the American Federation of Labor. The election was conducted by the National Labor Board representative in order to determine affiliation and was confined to a division of the plant.

Titanox FOR CONSERVATION... Today... and Tomorrow



CERTAINLY THE WAR-TIME necessity for light-weight paper stocks to spread out available pulp supplies points a lesson in conservation that profitably can be carried over to the post-war period.

The general acceptance of light-weight stocks by printer and consumer alike may be attributed to the excellent qualities of opacity, whiteness and brightness and the fine printing surfaces imparted to such papers by titanium pigments. Indeed TITANOX, the original and best known of these pigments, has played an important role in minimizing the impact of war-time restrictions on the printing world.

In view of the far reaching advantages deriving from the production and use of lighter weight stocks, such as conservation of manpower, pulp, transportation, mailing costs and the like, manufacturers may well consider carrying many of these lines into the post-war period. Today it is "yardage" as against "weight" in the paper field. Why not project this idea into your plans for the future?

TITANIUM PIGMENT CORPORATION
SOLE SALES AGENT
111 Broadway, New York 6, New York
104 South Michigan Avenue, Chicago 3, Illinois
350 Townsend Street, San Francisco 7, California
2472 Enterprise Street, Los Angeles 21, California

TITANOX
REG. U. S. PAT. OFF.

N. E. Paper Merchants To Meet

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., January 22, 1945 — The New England Paper Merchants Association, Inc., has issued notices of an Industry Meeting to be held Tuesday, January 30, at the Narragansett Hotel, Providence, R. I. Dinner is to be served at 6:30 o'clock. Paper distributors are cordially invited to attend this meeting which is being held to afford all members of the industry in the Rhode Island, Worcester and Southern Massachusetts area an opportunity to hear a discussion of War Regulations affecting the paper trade.

Norman E. Scott, Northeast Regional chief, Pulp, Paper and Containers Section, War Production Board, will lead the discussion of WPB Regulations.

Garvin Bawden, chief, Industrial Manufacturing Section of the New England Region, will lead the discussion of OPA Regulations and will be assisted by Coleman T. Bahn, Regional Attorney, and George G. Grinnell, Massachusetts Price Specialist on Paper and Paper Products.

Willard C. Leathers, assistant secretary, National Paper Trade Association, will lead the discussion of industry problems and recent changes in regulations other than those issued by WPB and OPA.

James Dolan, representing John C. Nash, Rhode Island District Manager of the War Production Board, Frank L. Martin, Rhode Island State OPA Director, and George Arris, Rhode Island State Price Executive, will be present as guests of the association.

The same type of meeting will be held at the Hotel Garde, Hartford, Conn., February 1 for Connecticut and Springfield distributors. Representatives of the Hartford WPB and OPA offices will be present as guests of the association. The committee in charge of arrangements is composed of A. C. Biza, G. F. Hines, and Richard B. Anderson.

To Rebuild Paper Machine

The Empire Box Corporation, Stroudsburg, Pa., manufacturers of folding and other board, have plans in progress for the complete rebuilding of the No. 1 machine.

Building changes are under way for the installation of eighty Black-Clawson vertical type driers, complete with all machine drives.

A Westinghouse turbine is on order and will be installed as a prime mover.

Another boiler is to be installed to take care of a contemplated 50% increase in output. The wet end and machine screens are being rebuilt and plans have been completed for a new Black-Clawson wet end in the near future.

A new settling system has been installed and two more Jordans, a Black-Clawson machine cutter and a suction primary press roll have been purchased. Installation is scheduled to start February 15, 1945.

Gardner-Richardson Moves Offices

The Gardner-Richardson Company, with general office at Middletown, Ohio and plants at Middletown and Lockland-Cincinnati, Ohio, is moving its New York offices, effective immediately, to Room 6723, Empire State Building, New York 1, N. Y. The telephone number will remain PEnnsylvania 6-1222.

Brotherhood Dines at Glens Falls

GLENS FALLS, N. Y., January 15, 1945—The annual banquet and installation of officers for the local branch of the International Brotherhood of Papermakers was held here last week with many prominent executives of the paper industry as guests. The new officers of the organization include Albert Tracey, president; Arthur Hubert, vice president; Paul Crowley, financial secretary, and Harry Coulter, recording secretary. The affair also served as a farewell party to Joseph A. Stewart, who resigned recently as foreman of the paper mill of Finch, Pruyn & Co. after forty years of service. Among those delivering addresses were H. F. Bullard, vice president in charge of manufacturing for the firm; Samuel Pruyn, vice president in charge of sales; Arthur Mosher, paper mill superintendent; John Falvey, pulp mill superintendent, and Lyman Beeman, manager of the St. Regis Paper Company. Messrs. Bullard and Pruyn complimented the members for their loyalty and cooperation and expressed the appreciation of the management for the cordial relations which have existed with the employes for such a long time. A communication was read from Maurice Hoopes, president of Finch, Pruyn & Co., in which he expressed appreciation to members of the organization for their loyalty. A program of entertainment and vaudeville followed the banquet.

Kidder Names Agents

The Kidder Press Company, Inc. of Dover, N. H., manufacturers of multicolor printing equipment, has announced the appointment of the sales agents for Kidder products in the United States and Canada.

A. E. Marconetti, Inc., 11 West 42nd street, New York City and C. P. Robinson, Graybar Building, New York will cover the Eastern and Mid-Western States and Canadian territory and Harry W. Brintnall Company, 430 Howard street, San Francisco will serve the far Western United States and Western Canada. The Brintnall Company's other offices are at 746 East 117th street, Los Angeles 21, California and at 2306 Third avenue, Seattle 1, Washington.

These Kidder representatives are well known to the converting trade, and will contact also paper and board mills, with Mr. Robinson mainly responsible for the slitter and rewinder sales.

Kidder Press Company, makers of "3 Point" letter presses, is introducing an improved "Anliner," a new line of "Unitype" gravure presses, as well as improved slitters and rewinders. Kidder engineers are available for consultation on postwar problems.

Berwin Paper Corp. Stock Sold

Charles T. Kehew announces that the stock of the Berwin Paper Corporation, manufacturers of light weight waxing papers, Dansville, N. Y., has been sold to a group of Cincinnati businessmen. The new officers of the corporation are as follows:—Louis Goldsmith, president; Joseph Horchow, vice-president; Harold C. Schott, secretary and Charles T. Kehew, treasurer and general manager. The active management of the corporation will remain in the hands of Charles T. Kehew and T. W. Donoghue, general superintendent.

Central Honors 25 Year Club

Thirty-two men with a service record of at least 25 consecutive years were recently formed into Central Paper Company's new Twenty-Five Year Club in Muskegon, Mich.

The charter members of this organization were the guests of C. W. Smith, Central's president, at a banquet held in the Occidental Hotel, and a "token" presentation of a gold watch was made to Al Zahrt as the oldest employee—gold watches will also be presented to the other thirty-one members when watches become available.

Toastmaster for the occasion was Don McDowell, personnel director, and appropriately enough, his remarks were based on the theme of, "Well done, thou good and faithful servant." Mr. Smith also paid tribute to the faithfulness of Central Paper Company employees and pointed out that Central Paper's record through the past 44 years has been one of continuous operation, thanks in a large part to the cooperation of the key employees. Mr. Smith also told of post-war plans, including methods of assuring continuous employment and continuance of the policy of employing older, more dependable employees.

The total service record of the charter members of the Twenty-Five Year Club adds up to 993 years! Besides these honored men, Central's roll also includes many others whose service record is over 25 years, but not consecutive. The tales these old-timers spun at the organization banquet would have found a good audience in anyone connected with the "paper business"—changes through the years, starting with the creation of Central Paper Company in 1899, the installation of the first Kraft digester in the United States in 1907, down to the present modern mill with four paper machines and a world-wide reputation.

The "Faithfuls" who have watched these changes, take a feeling of pride in the success of their company and the addition of one of the most important commodities in the world to the long list of products of Muskegon factories.

Plastics Club Elects Officers

The Plastics Club of the United States announces the election of the following officers for 1945: President — John Owen, Sorg Paper Company; Vice President — Charles Gates, B. Altman Company; Vice President — J. Murray Veveridge, Mavco Sales.

Ephraim Freedman, R. H. Macy & Co., has been elected to the Board of Advisors.

Programs for early 1945 include merchandising demonstrations and talks by E. I. DuPont, the Plaskon Company, and the Cellanese Plastics Corporation.

Hearst May Buy Maine Seaboard

"Week-end advices indicated that sale of Maine Seaboard Paper Company, newsprint mill at Bucksport, to the Hearst interests, may be imminent," says the Boston News Bureau. "If it develops, it will be an important step in the proposed reorganization of New England Public Service Company, which controls Maine Seaboard Paper. Seaboard now serves a large list of newspapers throughout the East. The mill has a capacity of 300 tons a day."

Key Men Get Service Pins

Seventy key men and women of the administrative branches and the conversion plant of the Pacific Mills Ltd. at Vancouver, B. C. were guests of the company at a dinner at the Hotel Vancouver recently. The occasion was marked by presentation of long service pins to some 20 of the executives and employees by Paul E. Cooper, president of the company.

James H. Lawson, secretary of the company, was presented with a diamond studded pin in recognition of 30 years' service. T. Godmundson, head millwright; G. J. Jessop, timber department and H. Pim, vice-president and sales manager each received a diamond studded pin in recognition of 25 years with the organization.

Twenty year service pins were presented to A. R. Webb, assistant superintendent conversion plant; and G. R. Bolton, traffic department. Fifteen year pins went to A. G. Griffith, E. Wiltshire, G. Poprosky and E. A. Manner.

Ten year pins were awarded T. B. Jackson, Miss Helen Main, Alec A. Finnerty, J. Sutherland and S. Watts. Five year pins went to Miss Ivy Spooner, A. Grimshaw, Miss Helmi Manner, E. Lester and George Fife.

The recipients of the 30, 25, and 20 year pins were guests at the head table, as was T. McMurphy, vice-president, Sulphite and Paper Makers' Union, Local 433.

In making the presentation Mr. Cooper expressed his pride in the company's achievements, which he said had been largely made possible by the efforts of those represented by the individuals whom he was presenting with long service pins. He pointed out how the company's plans for the future depended upon the co-operative spirit of every employee.

Mr. Pim stated each employee in the pulp and paper industry in British Columbia represented an investment of almost $17,000. He said the industry had the highest investment per employee. The petroleum manufacturing industry came second with $12,568 per employee.

W.P.B. Enjoins J. S. Publishing Corp.

J. S. Publishing Corporation, 45 Rose street, New York City, engaged in the manufacture of greeting cards and games made of paper and paperboard, has been suspended by the War Production Board for excess use of 989,818 pounds of paper and excess use of 185,364 pounds of paperboard, during the period April 1, 1943 through March 31, 1944, it was announced last week by R. A. McGovern, regional manager, WPB Compliance Division, Empire State Building, New York City.

The J. S. Publishing Corporation, as a result of Suspension Order S-689, during each calendar quarter of 1945 may use a limit of 31,425 pounds of paper and a limit of 6,285 pounds of paperboard. This WPB action will provide the corporation the opportunity to repay its excess paper and paperboard usage to the war effort and enable it to continue in business to the extent authorized by WPB.

Waste Paper Dealers To Dine

The New York Association of Dealers in Paper Mills' Supplies will hold its annual banquet in the Grand Ballroom of the Hotel Commodore, New York, on Tuesday evening, February 20. W. H. Martens is chairman of the banquet committee.

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending January 20, 1945

STOCKS

	High	Low	Last
A. P. W.	5¼	5	5⅛
Armstrong Cork Co.	45	44⅜	44⅞
Celotex Corp.	15⅞	15⅝	15⅝
Celotex Corp., pf.	19¼	19	19⅛
Certain-Teed Products Corp.	8⅛	7	7¾
Certain-Teed Products Corp., pf.	135¼	129	131
Champion Paper & Fibre Co.	30½	28⅝	29⅛
Champion Paper & Fibre Co., pf.	115½	114	115½
Congoleum Nairn Co.	29	28⅛	28⅝
Container Corp. of America	29¼	27¼	27½
Continental-Diamond Fibre Co.	12⅜	11⅜	11⅜
Crown-Zellerbach Co.	21⅜	20½	20½
Crown-Zellerbach Co., pf.	104	103	103⅜
Dixie Cup Co.	21¼	20½	20½
Dixie Cup Co.,—A	48	47⅜	48
Flintkote Co.	24⅜	23¾	24⅜
Flintkote Co., pf.	109	109	109
Robert Gair	5⅜	5⅛	5⅛
Robert Gair, pf.	17⅜	16½	17⅛
International Paper Co.	21½	20½	20⅝
International Paper Co., pf.	90½	88¾	88¼
Johns-Manville Corp.	105½	102	103½
Johns-Manville Corp., pf.	...	...	...
Kimberly-Clark Corp.	42⅛	41¾	42
Mac Andrews & Forbes	30	29¾	30
Mac Andrews & Forbes, pf.	148	147	148
Masonite Corp.	43¾	41½	42
Mead Corp.	13¾	12½	12⅞
Mead Corp., pf. A—6%	99¾	98¾	99¼
Mead Corp., pf. B—5½%	95	95	95
National Container Corp.	14⅜	13¾	13¾
Paraffine Companies, Inc.	57	56	56
Paraffine Companies, Inc., pf.	109	108¾	108¾
Rayonier, Inc.	17¼	16⅜	16½
Rayonier, Inc., pf.	35⅜	34⅝	34⅞
Ruberoid Co.	34½	34	34½
Scott Paper Co.	44	43	44
Scott Paper Co., pf.	111	111	111
Sutherland Paper Co.	35	34	35
Union Bag & Paper Corp.	15	14⅝	14⅝
United Paperboard Co.	7	6½	6½
U. S. Gypsum Co.	80	77½	78
U. S. Gypsum Co., pf.	182	180½	180½
West Virginia Pulp & Paper Co.	24⅝	23½	23½
West Virginia Pulp & Paper Co., pf.	107½	106⅝	107½

BONDS

Abitibi Pulp & Paper Co. 5s '53	100½	96¾	100½
Celotex Corp. 3¾ '55	...	...	...
Certain-Teed Products Corp. 5½s '48	102½	102½	102½
Champion Paper & Fibre Co. 4¾s '50	...	...	...
International Paper Co. 6s '55	108¾	108¾	108¾
International Paper Co. 5s '47	104⅞	104⅞	104⅞
Mead Corp. 3½s '53	...	...	...
West Virginia Pulp & Paper Co. 3s '54	...	...	...

New York Curb Exchange

High, Low and Last for Week Ending January 20, 1945

STOCKS

	High	Low	Last
Great Northern Paper Co.	36¾	36	36
Hummel-Ross Fibre Corp.	8½	7½	8½
St. Regis Paper Co.	6⅝	6⅛	6⅜
St. Regis Paper Co., pf.	...	...	...
Taggart Corp.	5¼	5¼	5¼

BONDS

American Writing Paper Co. 6s '61	...	...	...

Hercules Creates Subsidiary

Hercules Powder Company announces that it is creating a subsidiary, Hercules Powder Company, Ltd., for the distribution of technical information on its chemical products in Great Britain and Eire.

The company, which will have offices at 140 Park Lane, London, will be under the direction of Cornelius H. B. Rutteman, managing director.

Directors are Thomas H. Cooke, manager of Holden Vale Manufacturing Company, Haslingden, Lancashire, a partly owned subsidiary of Hercules; R. H. Oxley, manager of the London branch of the Bankers Trust Company of New York; Kenneth D. Cole, a member of the firm of Messrs. Linklaters & Paines, solicitors; and Cornelius H. B. Rutteman.

Hercules has been selling chemicals in Great Britain for 25 years, and throughout the period its technical representatives have been assisting distributors and customers in the utilization of these chemicals. Mr. Rutteman has been the company's resident representative in London since 1939.

The London office will administer the company's English business and assist customers and local distributors with data and technical service on the use of Hercules products. These include cellulose derivatives for lacquers and plastics, terpene and rosin chemicals, synthetic resins for the protective coating and other industries, and paper makers chemicals.

Manufacturing operations of the Hercules Paper Makers Chemical Department will be continued at Erith, England.

E. R. Gay Rejoins St. Regis Paper Co.

Edward R. Gay, who recently resigned as assistant vice chairman of the War Production Board, will resume his duties as vice president of the St. Regis Paper Company, New York, on February 5, R. K. Ferguson, President, has announced.

The War Production Board recently expressed publicly its appreciation to Mr. Gay as "one of the first of the many executives who gave up their peace time positions to assist in directing the nation's economy during the war period."

Serving first as chief of the Industrial Programs Branch of the Office of Civilian Supply, Mr. Gay later became Director of the General Commodities Division, and, in May, 1944, was appointed Assistant Vice Chairman of the Board.

Now Neatape Corp.

A. Avrick, President, and B. Brody, vice-president in charge of sales, of Interstate Paper Products Company, 24-34 New Chambers street, New York 7, N. Y., announce that effective January 1, 1945 the company will be known as Neatape Corporation. The change was decided upon by the directors in order to take fullest advantage of the wide popularity being enjoyed by the company's line of Neatape package sealing and labeling dispensers. In the near future, an announcement introducing a line of 26 varieties of canning labels will be released as the first step in expansion of the company's line of specialized labels and dispensers.

Builds New Alum Plant

A new plant for the manufacture of commercial alum is being built by the American Cyanamid and Chemical Corporation on a forty acre tract at Schenk, just outside the city limits of Hamilton, Ohio.

The corporation, a unit of American Cyanamid Company, operates seven other plants for the manufacture of alum in widely separated locations. Principal uses of the product are in the paper industry and in water purification plants.

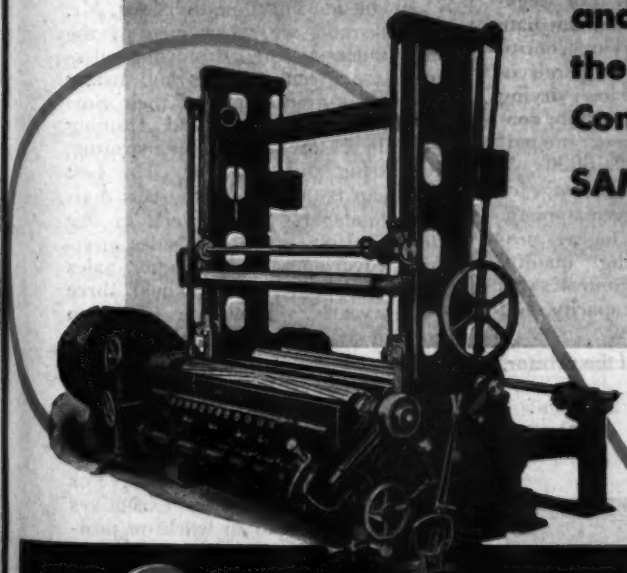
Celotex Nets 53 Cents

The Celotex Corporation for the year to October 31, reports net earnings, after taxes and all charges, were $562,276, Bror Dahlberg, president, reported at annual stockholders' meeting. The earnings are equal, after preferred dividend requirements, to 53 cents each on 755,472 common shares outstanding and compare with $530,199, or 54 cents each on 696,933 shares outstanding in previous fiscal year. Net current assets on October 31, last, were $5,348,478, compared with $4,626,602 a year earlier.

Successful Combinations

THERE'S an appetizing affinity between "ham and eggs" that puts them near the top of the list of successful combinations. And wherever paper is worked you'll generally find *Langston* successfully teamed up with well known products such as *Dixie* Cups. The Dixie Cup Co. of Chicago, Ill., and Easton, Penna., use the Type BA Langston Slitter and Roll Winder in making their immaculate, finely formed paper cups. You get a true, clean cut and rolls of uniform density with a Langston. There is a type and size for every requirement in the Mill, Finishing Room or Paper Converting Plant.

SAMUEL M. LANGSTON COMPANY
Camden, New Jersey



Langston
SLITTERS AND ROLL WINDERS

TYPE "BA"
Built 62", 72", 82", 92" wide. Speed up to 1500 feet per minute. Minimum cut, Standard 6", Special, down to 1½". Maximum diameter of re-wound roll, 60".

DIXIE CUPS

Paper Men Speak at N. E. Sales Conference

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., January 15, 1945—At the Sixth New England Sales Management Conference, held at the Hotel Statler January 12 and 13, two executives from paper manufacturing concerns were speakers: Cy Norton, manager of sales promotion, Strathmore Paper Company, West Springfield, Mass., spoke Friday afternoon, and G. H. Swatek, industrial sales manager, Scott Paper Company, Saturday morning. Both Mr. Norton and Mr. Swatek were members on Friday evening of a panel conducted for a discussion of "Selecting and Training the Sales Personnel."

In his talk, Mr. Norton said that in recent weeks selling has really started to go because when sales executives dig in they have found much to do. A large number of concerns will start all over again. "The sales executive who begins now to overhaul and revitalize his sales thinking will be out in front when fair - weather selling changes to squalls."

Mr. Swatek, who gave a first-hand report on an outstanding training and man-building program with a wealth of information for all sales executives, said that "throughout the world is a coming feeling that unless we win a better world to live in the fight will be in vain. Market research and advertising will play an important part, but on the salesman will be the responsibility for distributing goods and selling." Speaking of "The Man Building Program of the Scott Paper Company," Mr. Swatek stated: "Our business is built around the consumer idea to supply these products at lowest possible cost and to create greater acceptance of these products through advertising." After noting that his company did seven million dollars worth of business in 1939 and thirty-one million in 1944, he said he would deal primarily with industrial sales.

The speaker outlined the "Scott Man Building Program" as given in the following, discussing each section:

1. Selection of Right Men
2. Indoctrination of New Men
3. Sales Meetings and Conventions
4. Headquarters Continuous Training
5. Educational Policy
6. Wartime Conditioning Program
   a. Inventory and Allocation
   b. War on Waste
   c. Future Planning
7. Promotions from the Ranks
8. Reorientation Program

In considering these divisions, Mr. Swatek said we select men of the best understanding. Promising salesmen are given training and major executives give amply of their time for this purpose. Field training embodies teaching, demonstrating, processing and checking. The best salesman is not always the best division manager. Every week in our divisional offices we hold sales meetings, covering sales technique. Sales conventions are usually held three times yearly. They are keyed to current conditions. Our plans are very frankly revealed at these conventions. Meetings are largely inspirational and men react to them enthusiastically. We believe it essential that our men should be imbued with the spirit of the company. For the last six months our executives have been engaged in work on post-war plans. One by-product of the program is to see best where a man can fit.

Among the questions and answers in the panel which had to do with

STICKLE DRAINAGE AND CONTROL

HIGHER PRODUCTION —IMPROVED QUALITY

• The difference between the actual production volume of a paper machine and its potential or possible production capacity, represents the factor of inefficiency. A reasonable percentage of this factor of inefficiency must be accepted in establishing production quotas, to compensate for both human and mechanical elements beyond absolute control.

However, the installation of Stickle Drainage and Control Equipment for paper mills has clearly demonstrated that, within its field of operation, it brings actual production volume and potential capacity sufficiently close to be spanned by a minimum of difference.

The high production efficiency attained with the use of Stickle Drainage and Control is possible because: (1) Stickle Drainage and Control creates and maintains the essential conditions for effective operation and efficient production. (2) To the greatest possible degree Stickle Drainage and Control Equipment operates automatically—therefore, it is to the least possible degree dependent upon the human element for correcting conditions created by fluctuations. (3) It affords further protection through supplying visible information of what is taking place in the dryers — a constant and continuing picture of operation.

Here are some of the reasons why Stickle Drainage and Control Equipment increases production volume and improves quality: (1) Positive and effective elimination of condensate and air at all pressures. (2) Regulation of steam flow to immediate need of dryers. (3) Drying control extremely sensitive to variations in weight or free and slow drying stocks. (4) Control of moisture content within a variation of one-half of one per cent. (5) Visibility of operation gives exact knowledge of operation of each dryer syphon. In addition to giving higher production and improving quality, Stickle Drainage and Control saves steam, increases boiler capacity, and reduces fuel costs.

A new and important bulletin for paper mills is in the hands of the printer. A copy will be reserved for you on request.

Stickle

STEAM SPECIALTIES COMPANY

2245 VALLEY AVENUE • INDIANAPOLIS, INDIANA

FOR 40 YEARS REDUCING STEAM COSTS IN PAPER MILLS

"Selecting and Training the Sales Personnel," was one which asked if post-war planning could be delayed considering the course of the war in Europe at the present time. Cy Norton intimated that it had better be continued, there are so many things to be done.

In answering the question, "Do you believe in unions for salesmen?" Mr. Norton felt that it was important to know why a salesman wants to join a union. Do what you can to find out the reasons and meet the situation.

In considering the question, "Should a bonus be set up on any scale?" Mr. Norton said it was cheaper to give the salesman a maximum premium.

Appointed N. Y. Manager

Archibald J. Cooper has been appointed manager of the Allis-Chalmers Manufacturing Company's New York district office, it has been announced recently by Frank C. Angle, manager of the Company's 61 district and branch offices.

Cooper, formerly assistant manager of the New York office, succeeds A. F. Rolf, who now will devote full time to his duties as assistant secretary of the company.

Cooper was born April 25, 1888, at Sydney, N. S. Wales, Australia and obtained his degree as an electrical engineer in 1909 from the Sydney Technical college. Before joining Allis-Chalmers on July 1, 1909, he was employed by the N. S. Wales Government's Railways and Tramways, and by Stone and Webster of Seattle, Wash., installing electrical equipment for the Alaska-Yukon-Pacific exposition.

After completing the Allis-Chalmers training program for graduate engineers, Cooper served in the electrical estimating department and as a field engineer before joining the company's sales-engineering staff. He was sent to the Boston, Mass., office as a specialist on street railways and air compressor equipment, and later handled the sale of all of the company's major products in New England.

He joined the New York office in 1920 and later became assistant manager.

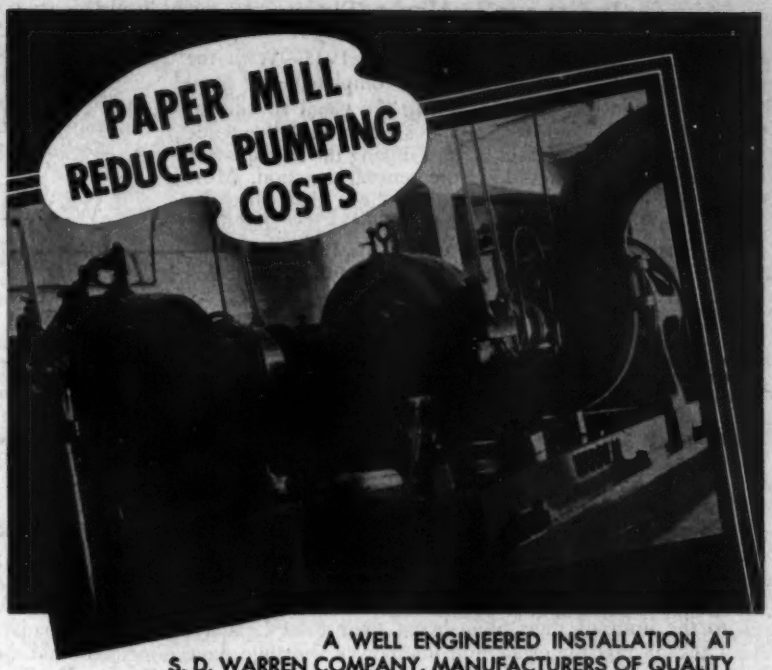
Use Less Newsprint

Daily newspapers reporting to the American Newspaper Publishers Association consumed 205,952 tons of newsprint paper in December 1944 compared with 218,390 tons in 1943 and 274,471 tons in 1941. This was a decrease in December 1944 under December 1943 of 5.7% and a decrease under December 1941 of 25.0%. The year 1941 is the base for calculating allowable use by newspapers.

The total estimated newsprint consumption in the United States for December 1944 was 284,072 tons which includes all kinds of uses of newsprint paper. For the year 1944, it was estimated to be 3,242,891 tons. The ANPA is now using 72½% instead of 75% as more accurately representing the part which newsprint consumption of the ANPA reporting group bears to the estimated consumption total of 100% by all users.

For the year 1944 the reporting newspapers used 2,351,096 tons of newsprint, a decrease of 13.6% under the year 1943, and a decrease of 20.2% under the year 1941.

The stocks of newsprint paper on hand with newspapers reporting to the ANPA was 52 days' supply at the end of December 1944 which was a decrease of 1 day's supply from 53 days on hand at the end of November 1944.



A WELL ENGINEERED INSTALLATION AT S. D. WARREN COMPANY, MANUFACTURERS OF QUALITY PRINTING PAPERS, CUMBERLAND MILLS, MAINE . . . ASSISTED BY A WARREN PUMP.

Paper Mills place a premium on reliability and performance. At Cumberland Mills the plant hydraulic elevator pump has a dual drive turbine and synchronous motor.

The turbine driver is used to regulate heat balance and to supply process steam. Pump requirements are thus served with by-product power. The synchronous motor generates when the steam demand exceeds the pump load and operates as a motor when the demand is less. Pump power costs are reduced to a minimum.

In addition to building pumps for every paper mill service, Warren cooperates with plant engineers in working out money-saving installations.

WARREN PUMPS

WARREN STEAM PUMP COMPANY, INC.
WARREN, MASSACHUSETTS

Indianapolis Marks Time

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., January 22, 1945—With the holiday season and inventories completed, the local paper trade has settled down to the usual routine of heavy orders and few supplies. Nor can the trade see anything that might happen during the first quarter of the year that would aid the general situation. Most of the local executives firmly believe that once the war in Europe has been settled, there will be some easement both in supplies and in the labor situation, but none can foretell with any certainty when this will happen.

So, in the meantime, the trade struggles along as best possible. One of the critical bottlenecks is the lack of labor. This is particularly true in the production end of the business. Jobbers, while not having all the help they could use, are finding sufficient to attend to their business. The factories, however, are placed much differently. With a general tightening of the draft laws, the local factories can expect to lose more men to the armed services and the number returning via the discharge route, is insignificant as yet.

Demand for containers and fiber boxes during the last week continued heavy. Local plants are producing to the limit of their ability, not their total capacity. Lack of raw materials and manpower shortage have combined to keep production below plant capacity in most instances. Most of the output is going either directly or indirectly into the war effort. Container demand from Indiana defense industries continued very heavy last week.

Local paper stock executives state that last week saw a continued insistent demand on the part of mills for waste paper. Local stocks are not heavy, but collections have been fair and every effort is being made to further increase collections. All prices remained firm at ceiling levels. Rag demand also continued heavy, with the emphasis on new white cuttings, which are rather scarce in this territory. Prices on all grades, however, were at ceiling levels.

W. L. Hunter To Be Chief Engineer

Announcement is made by Northern Equipment Company, Erie, Pa., manufacturer of Copes feed water regulators and allied equipment, of the appointment of W. L. Hunter as chief engineer. Mr. Hunter will supervise engineering, design and research. Associated with the company for 18 years, he has had wide experience in the development and problems of feed water control, desuperheating, and pressure reduction. He is well known as an application consultant. Mr. Hunter graduated from the University of Tennessee in 1919 with the degree of Mechanical Engineer.

The post of assistant chief engineer will be taken by H. A. Schlieder, associated with the company for 8 years. He graduated from Rensselaer Polytechnic Institute in 1932 as an electrical engineer. Mr. Schlieder has had considerable design and field experience in this and foreign countries.

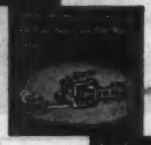
H. H. Weining has been appointed director of research. Since his graduation from the Pennsylvania State College in 1926 as mechanical engineer, he has been in the employ of the company. In recent years, his activities have been directed to development, testing, and critical analysis of design and construction of Copes Products.

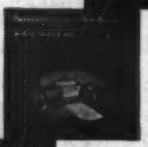
SINCE 1828 — CONTINUOUSLY WE HAVE SERVED THE PAPER INDUSTRY.

The war is not over. But when it is over, will you be among the first to receive new equipment?

We can now book approved orders which will be filled in the order received.

Some will have to wait—so plan now to be the first.





Paper Bag Machines

Paper Machines Jordans

Paper Trimmers—new model E.

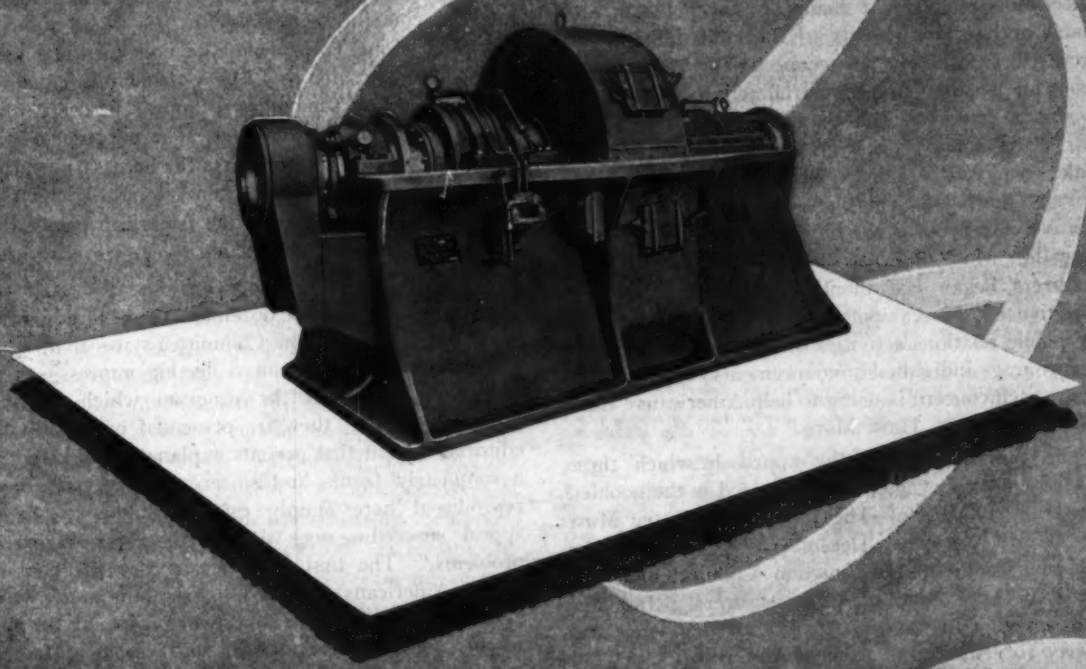
THE SMITH & WINCHESTER

MANUFACTURING COMPANY

PLANT AND OFFICES AT SOUTH WINDHAM, CONNECTICUT

Sutherland Continuous Beating and Refining System

Two Sutherlands Alone do all stock preparation for two machine mill making SC and MF Book and Magazine.



SUTHERLAND REFINER CORPORATION

Trenton, N. J.

PAPER
TRADE JOURNAL
Title Reg. U. S. Pat. Off.
Henry J. Berger, Editor

COMING EVENTS IN PAPER INDUSTRY

The American Paper and Pulp Association and affiliated organizations, The Technical Association of the Pulp and Paper Industry, and The National Paper Trade Association, because of war conditions, have cancelled their conventions, which were tentatively arranged to be held in New York, February 19-22, 1945.

New England Section. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

Delaware Valley Section. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

Lake States Section. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

Kalamazoo Valley Section. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

Empire State Section. Technical Association of the Pulp and Paper Industry—Second Thursday of each month at the Woodruff Hotel, Watertown, N. Y.

Chicago Professional Paper Group—Third Monday of each month except July and August at Chicago Bar Association, Chicago, Ill.

BUSINESS PLANS AHEAD

In preparation for the difficult problems ahead in the transition of a wartime economy to a peacetime order, two important questions must be soberly considered. These questions are: will a Government controlled economy suffice or shall the country return to a modified system of private enterprise. One thing is certain: too great a change in the political, economic and social structure of the United States has occurred to warrant any expectation of resuming peacetime business and industrial activity precisely as it was relinquished when regimentation began for war. The coming decision which the people must make soon, can be either a disaster or a triumph for private enterprise. This fight to preserve free, competitive enterprise, is the objective of the advertising campaign which the National Association of Manufacturers began last month. The stated primary objective of this campaign is "to set the stage for the public relations activities of all business and thus to encourage individual announcements of the specific things each concern is doing to help Americans "Earn More, Buy More, Have More."

The thinking behind the approach which these advertisements keynote, is summarized in the booklet, "A Time for Action—The Job That Industry Must Do Now," published December 29, 1944, by the National Industrial Information Committee of the National Association of Manufacturers. "Industry can provide a future of security with abundance and liberty for Americans," the booklet points out, "but it cannot do so unless there is a climate in which it can thrive. Industry cannot hope for sympathetic political action until it has convinced the public of its own good motives and of its economic leadership. Therefore, it must go to the public with a positive program—a program specifying the action it intends to take. It must convince the American people it can do the job. For only by creating confidence in itself among the American people, can industry pave the way for requests for public cooperation. And to build confidence in itself among the American people, industry must blueprint exactly how it will do the job. For the crux of the whole matter is a question of choice—a choice between a free economy and a government-controlled economy; a choice between the future offered by one and the future offered by the other."

In emphasizing how this can be accomplished the booklet states in part: "Obviously, every individual industry in America must present its case to the American people. But if the case of industry is to be believed, it must be consistent. It must be presented as the program for all industry. . . . Also, before it is presented, the people must be pre-sold on the advantages of an expansionist over a restricted economy. For the specific lack of faith which the public has shown in industry has been part of the general lack of faith they have had in the country itself. They have been inclined to accept the explanation that our economy is mature, that we have reached the limit of our growth. Their faith in themselves and the American destiny must be reawakened before they are willing to believe again in the promise of industry. The job is a psychological one. And, fortunately, the American people are now in a victory mood, a conquering mood. Now, is of all times, a time for action. To provide a keynote for the general industrial effort, the N.I.I.C. is launching a nation-wide advertising campaign, to appear in every town of 50,000 population and over. The purposes of this campaign are: (1) To establish the necessary psychological background for the general industrial effort, and (2) To make clear to the American people that industry does have a program, a very clear program for the future."

In commenting on the dozen specimens of advertisements in the booklet, the Committee states that, "they are designed, not to create a fleeting impression, but to explain in detail the program which industry purposes. Hence, they are presented in an all-type, editorial format that permits explanation at length in a completely frank, and sincere fashion. The ones reproduced here simply establish industry's basic appeal; succeeding ones will apply it to specific current problems." The first advertisement in the booklet, "How Americans can earn more, buy more, have more," asserts that there is postwar prosperity for all." In this undertaking American business, manufacturing, retailing, farming, construction, transportation, will play a major role. . . . Business plans and is ready to meet its responsibilities. Its plans are based on common sense facts, that the key to postwar prosperity is high production, and that the way to keep production at a high level is to be sure that all of us will be able to buy the things our farms and factories

PULP AND PAPER

LYDDON & COMPANY
(AMERICA) INC.
•
EXPORTERS OF WOOD PULP
TO BRITAIN, SOUTH AMERICA AND
ALL OTHER WORLD MARKETS

PARSONS & WHITTEMORE
INCORPORATED
•
WOOD PULP
WORLD-WIDE PAPER EXPORTERS

10 EAST 40TH ST. NEW YORK CITY

can produce. Only an income based on production can provide, at the same time, the money to buy with and the things to buy. Every wage earner is both a producer and a consumer, he makes things and he buys things. If he is paid enough for what he makes, and given good enough bargains in what he buys, the 'process of prosperity' can be put in motion and lasting jobs created. They can't be made through government hand-outs, which only increase public debt and raise taxes still further."

Declaring that certain essentials are vital for this plan, the advertisement quoted above states: "Two things are required. The first is an honest and aggressive effort by management to fufill its part of the program. The second is public cooperation, in creating conditions favorable to the full play of this country's limitless energy and ambition. Business is pledged to do its part, first, by increasing the opportunities for all to earn and, second, by increasing the opportunities for all to buy. To increase the opportunities of all to buy, business proposes to make full use of the technological 'know how' it has accumulated during the war to put on the market the finest products that can be made, at the lowest prices for which they can be sold." Each of the advertisements in the booklet states: "If you wish to know more about this program, write for the free booklet to the National Industrial Information Committee, 14 West 49th street, New York 20, N. Y."

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1944		Corresponding Weeks—1943	
Dec. 9	93.6	Dec. 11	88.9
Dec. 16	89.2	Dec. 18	89.9
Dec. 23	85.5	Dec. 25	68.6
Dec. 30	61.0	Jan. 1,'44	70.3
Jan. 6,'45	81.0	Jan. 8	90.2
Jan. 13	*88.7*	Jan. 15	89.5

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1943	87.2	88.9	89.5	88.7	91.4	84.8	84.3	91.0	88.3	89.6	89.6	82.0	87.8
1944	88.7	88.5	88.1	87.6	88.7	89.8	80.3	90.6	88.2	92.5	91.9	*84.4*	88.4

COMPARATIVE YEARLY SUMMARIES

	1937	1938	1939	1940	1941	1942	1943	1944
Year Average	79.8	71.5	83.4	85.6	97.4	90.4	87.8	*88.4*

*Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS†

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1938	56	63	63	60	60	59	59	69	70	73	67	61	64
1939	65	73	76	74	69	73	68	77	82	91	88	77	77
1940	78	75	74	76	82	85	77	79	78	85	83	77	78
1941	81	88	89	89	91	94	92	98	95	99	98	90	92
1942	102	101	101	95	82	72	68	75	76	81	82	77	84
1943	86	88	94	94	96	94	89	96	94	94	93	87	93
1944	90	96	95	96	96	96	85	96	92	95	95	85	*93*

Week ending Dec. 9, 1944—95
Week ending Dec. 16, 1944—94
Week ending Dec. 23, 1944—94
Week ending Dec. 30, 1944—57
Week ending Jan. 6, 1945—80
Week ending Jan. 13, 1945—95

†Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

O'Connor Waste Co. Incorporates

TROY, N. Y., January 22, 1945 — Incorporation articles have been filed with the state by the O'Connor Waste Company showing 180 shares of stock without par value.

PAREZ*

FEATURES

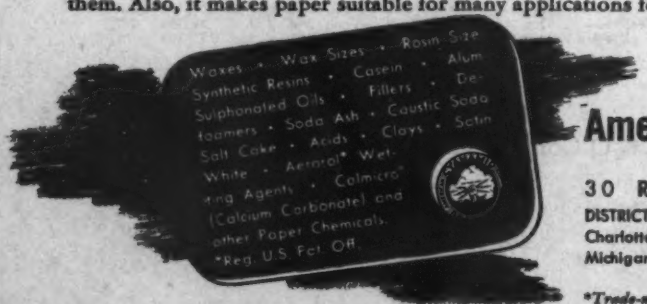
BALANCED (WET-DRY) STRENGTH QUALITIES FOR PAPER!

WET OR DRY, paper treated with PAREZ, Cyanamid's new melamine paper resin, is stronger and tougher... has improved tensile and bursting strength... plus folding endurance. Also, better dimensional stability under varying conditions of humidity is made possible.

When PAREZ is converted into the Cyanamid-developed active colloid for incorporation into the paper, it helps paper to bridge the gap between its own qualities and those of other materials. There is an important advantage in this, since paper may thereby bear a higher ratio of value to cost than it would if it lacked the PAREZ wet-strength features...and improving possibilities of profit on articles for which paper has long been the established material by building more value into them. Also, it makes paper suitable for many applications for which it has been considered unsatisfactory heretofore. For such uses, PAREZ wet-strength paper may have a value several times that of ordinary paper.

A few of the war-proved applications for paper made possible with Cyanamid's melamine resin hold clues to new consumer and industrial peacetime product uses. Paper bags, waterproofed and wet-strength treated with PAREZ, can be immersed in water or exposed to rain for long periods of time and still remain intact. Maps printed on PAREZ-treated paper remain legible after they're soaked with water or oil, trampled in the mud, washed with soap and water, or dipped in gasoline. Wet-strength tags resist all kinds of exposure.

Because all these important, improved wet- and dry-strength characteristics point the way to new possibilities for paper... broader markets, new product developments...watch PAREZ! Full details on its many advantages are available from Cyanamid.


Waxes • Wax Sizes • Rosin Size
Synthetic Resins • Casein • Alum
Sulphonated Oils • Fillers • De-
foamers • Soda Ash • Caustic Soda
Salt Cake • Acids • Clays • Satin
White • Aerosol* Wet-
ting Agents • Calmicro*
(Calcium Carbonate) and
other Paper Chemicals.
*Reg. U.S. Pat. Off.

American Cyanamid & Chemical Corporation

(A Unit of American Cyanamid Company)

30 ROCKEFELLER PLAZA · NEW YORK 20, N. Y.

DISTRICT OFFICES: Boston, Massachusetts; Philadelphia, Pennsylvania; Baltimore, Maryland; Charlotte, North Carolina; Cleveland, Ohio; Chicago, Illinois; Kalamazoo, Michigan; Detroit, Michigan; St. Louis, Missouri; Azusa, California; Seattle, Washington; In Canada: Dillons Chemical Company, Ltd., Montreal and Toronto

**Trade-mark of American Cyanamid & Chemical Corporation covering its synthetic resins for use by the paper industry. The processes under which PAREZ is applied in the production of wet-strength paper are covered by U. S. Patents Nos. 2,291,079, 2,291,080, and 2,345,543, and U. S. Patent Application Serial No. 453,032.*

Section of the
TECHNICAL ASSOCIATION
OF THE PULP & PAPER INDUSTRY
122 E. 42nd St., New York 17, N. Y.
Edited by R. G. Macdonald, Secretary

Abrasion Resistance of Paper Base Plastics and Associated Materials

By Edward R. Hoffman[1]

Abstract

One of the important properties of paper base plastics is its resistance to abrasion. This is better appreciated when uses such as table tops, wall surfaces, and airplane parts are considered as practical applications.

A thorough investigation was made to determine the best available means and method of testing for abrasion. A brief description is given of the abrasion machine used. Also, an abrasion scale comparing some of the more familiar materials with paper base plastics.

A graph is shown demonstrating the constant value of abrasion resistance for paper base plastic specimens seasoned up to 75% relative humidity.

Improvements in abrasion of paper base plastics as large as 80% have been produced by the use of additional agents in the resins for impregnating. The report is concluded with the results obtained from the study of a number of sulphite papers.

Some of the difficulties in making an abrasion test are the indefinite conditions surrounding an abrasive action, the difficulty in maintaining a constant wear, and the relation between a test and field applications. The commercial abraser manufactured by the Taber Instrument Company has gone a long way toward standardizing an abrasion test.

Description of Instrument

The abraser (Fig. 1) is a small compact machine consisting of two essential parts; the base and the abrading heads. The base is approximately 12 inches long and 5 inches wide and has on top a 4 inch-diameter turn-table to hold the specimen. The table is electrically driven in a counter-clockwise direction and is cooled by a fan within the base. It revolves at a rate of 70 r.p.m. and the revolutions recorded by a counter device. Supported from the base are dual, lever type, abrading heads each consisting of a free turning abrading wheel and a means for applying loads from 125 to 1000 grams. In operation the abrading wheels are lowered onto the specimen attached to the table, as illustrated in Fig. 1. The wheels are 2½ inches apart, are equally distant radially from the center of the turn-table, and have a common line of rotation about ¾ inch from the center. As the table rotates during a test the surface of the specimen passes diagonally under the face of the wheels causing a rubbing action as the abrading wheels are forced to rotate. The resulting wear track is a circular path covering approximately 10 square centimeters of surface.

The machine is equipped with five grades of abrading wheels, 2 inches in diameter, designed to give a range of abrading speeds suitable for use upon a great variety of materials. The wheels are made of rubberlike compositions containing various grades of

[1] Asst. Physicist, Hammermill Paper Co., Erie, Pa.

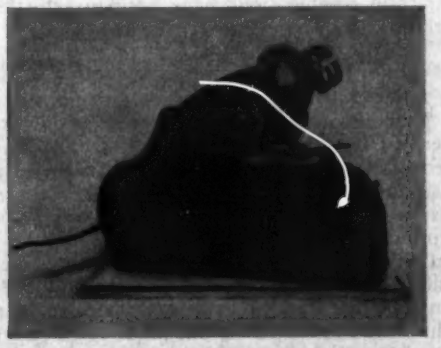


FIG. 1
Abrasion Tester

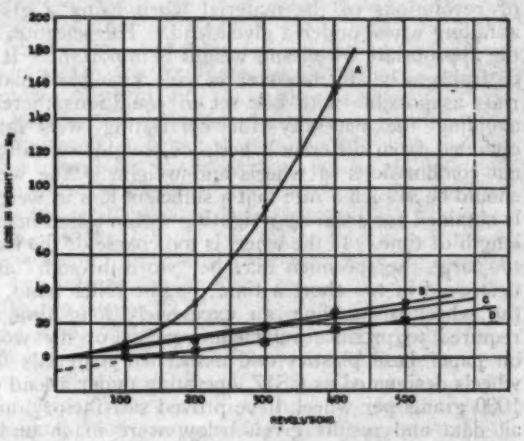


FIG. 2
Typical Wear Curves for Thermoplastic Coated Papers. A—Resin Coated Paper Showing the Transition from Coating to Paper. B and C—Linear Type Relations Similar to Those Found in Paper Base Plastics. D—Linear Type Curve Requiring Zero Correction

abrasive materials which wear away with use bringing new and sharp abrasive material to the surface. The wear-action is the combined effect of the sharp abrasive materials cutting minute scratches in the surface of the specimen while the rubberlike portion rubs the surface like an eraser and the abraded material is discharged from the wear-track by the motion of the abrading wheel.

On most surfaces the abrading wheels pick up a portion of the abraded material causing the efficiency of the wheel to decrease. For standardizing the wheel surface, disks of emery paper are furnished which are placed on the table and run similar to a specimen. The emery paper readily removes the outer surface of the wheel exposing new material. The operation is called resurfacing.

Procedure

The abrasion resistance of a material is defined as the loss in weight resulting from a specified number of revolutions of the material when using a given abrading wheel under a given load. The selection of the appropriate wheel and weight is important. It is desirable to be able to cover as wide a range of materials as possible with one set of conditions thereby avoiding the necessity for correlating wear-rates obtained from different wheels or weights or different combinations of wheels and weights. The wear should be at such a rate that a sufficient loss in weight is obtained for accurate weighting within a reasonable length of time. If the wheel is too coarse or the load too large the specimen may be "worn-through" and destroyed in too short a time; on the other hand, if the wheel is too fine, an excessively long time is required to produce sufficient wear. For the work on paper base plastics and associated materials the wheels designated as CS17, operating under a load of 1000 grams per wheel, have proved satisfactory, and all data and results given below were made under these conditions.

Wear-rate data were obtained by initially weighing the specimen, running the specimen on the abrading machine for a specified number of revolutions, reweighing, and repeating the sequence several times. The abrading wheels were resurfaced with 20 revolutions between *each* weighing. For thermosetting laminates and the more abrasion resisting materials, reweighings were made every 1000 revolutions for a total of 5000 revolutions; for softer materials, as the thermoplastics, weighings were made every 100 revolutions for a total of 500 revolutions.

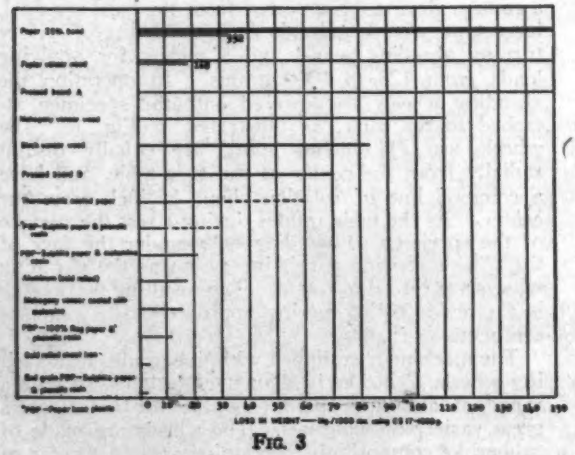


FIG. 3

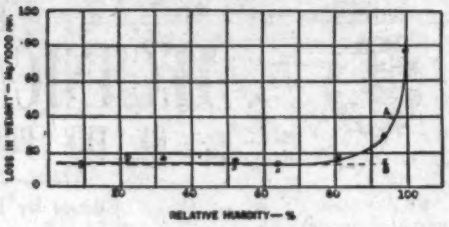


FIG. 4

Curve A—The Relation Between the Wear Rate and Relative Humidity at Which the Specimen Is Seasoned. Curve B—The Relation of the Wear Rates Determined at 52% and the Humidity at Which the Impregnated Paper Is Seasoned

The loss in weight of the specimen was plotted against the number of revolutions and a smooth curve, usually linear, was drawn through the points. A wear-rate value, expressed in milligrams loss in weight per 1000 revolutions, was calculated from the slope of the curve.

In Fig. 2 are shown typical abrasion curves for several thermoplastic coated sheets. Curve A shows the transition from the plastic to paper. The plastic coating was worn through after 125 revolutions, and the wear beyond this was on the paper. The abrasion curve for sample D was not linear during the early abrasion stages but was linear during the latter stages thus requiring a zero correction. This nonlinearity was apparently due to unevenness of the surface of the material even when the laminates were made between ground, chrome plated cauls. When the specimens were given a short initial run of about 40 revolutions on the abrading machine to develop a uniform wear-track, the wear-curves were linear and passed through zero as shown by Curves B and C. These examples serve to illustrate the desirability of taking periodic readings and plotting the data, thereby avoiding the possibility of obtaining erroneous or fictitious readings. If the wear-rate value had been calculated from the loss in weight for a continuous run of say 400 revolutions, the value for sample A would have been entirely too large and for sample D too small.

Scope

The present investigation has covered a wide variety of materials, plastic as well as nonplastic, with emphasis on plastic coated and laminated papers. In Fig. 3 are shown the wear-rates obtained for these materials and the table serves as a comparison scale whereby the various materials may be evaluated with respect to each other.

A few factors affecting the abrasion resistance of paper-resin combinations have been investigated and the results of this work are presented below.

Effect of Moisture

It was found that the abrasion resistance of paper base phenolic laminates was affected by the moisture content of the laminate. The specimens were conditioned at various humidities, as described in a previous paper *(1)*. As shown in Fig. 4, curve A, the abrasion rate for a given specimen appears to be approximately constant for relative humidities up to about 75% and then the abrasion rate increases rapidly.

On the other hand, the abrasion rate for laminates conditioned at 52% R. H. but made from paper conditioned at various humidities prior to laminating was unaffected by the moisture content of the impreg-

nated paper, (Fig. 4, curve B). This seems surprising considering that large variations were found in the mechanical properties of laminates made under similar conditions, *(loc. cit)*.

Thickness of Laminate

The abrasion of panels made with various numbers of sheets was investigated to determine if a few sheets formed as a panel represented a true test specimen, and because of the interest shown in finishing inexpensive boards with a few sheets of resin-impregnated paper. Fig. 5 shows graphically the results obtained by laminating 1, 2, 4, 8, and 14 sheets of 3 mil paper into panels and testing for wear. It will be noted that the wear-rate increases as the number of sheets per panel increases up to about fourteen sheets after which there is little change in the abrasion quality. This represents about a 75% decrease in abrasion resistance. The explanation of this phenomenon is still unknown and due to the magnitude of the variation further investigation is warranted. It does not appear to be an exaggerated skin effect since the wear-rate curves for thick panels are linear and pass through zero; otherwise the curves might be expected to show a break similar to that demonstrated in Fig. 2A for the thermoplastic coated sheet.

This increase in wear-rate with sheet thickness was also observed when a few sheets of impregnated paper were laminated to pressed boards.

Resins

Thermosetting: A number of paper base laminates were made with high strength unbleached sulphite paper and various commercial low pressure phenol formaldehyde resins.

Preliminary investigations had shown that with a given paper and resin, neither variations in resin content from 35% to 48% nor variations in laminating pressures from 50 to 3000 psi. had any significant effect on the wear-rates.

However, the wear-rates did vary over a rather wide range with the various phenolic resins, and showed a somewhat wider variation in abrasion resistance than in other physical properties.

The wear-rates for these laminates are shown in Fig. 6. Specimens designated as Nos. 9 to 12 were four different commercial resins all having nearly the same wear-rate, about 27 mg. loss per 1000 revolutions. Specimen No. 8 was the poorest resin laminate encountered (wear-rate of 40), and the two

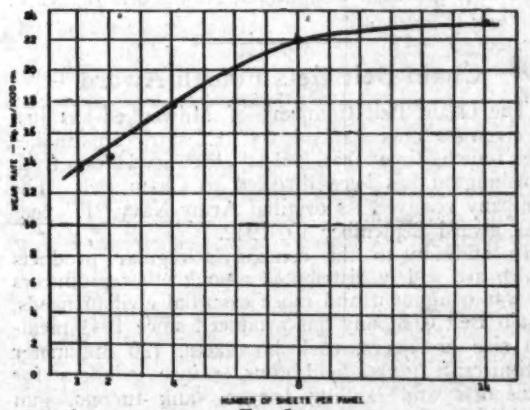


Fig. 5

The Relation of Wear Rates to the Number of Impregnated Sheets per Panel Showing a 75% Increase as the Panels Become Thicker

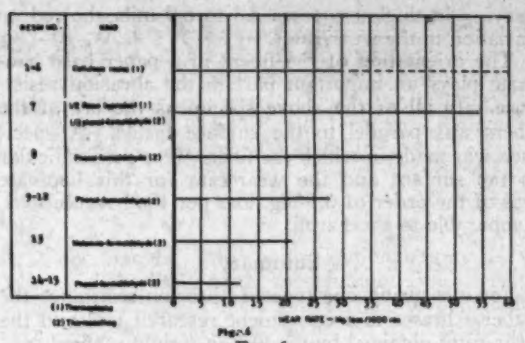


Fig. 6

Relative Abrasion Rate of Various Commercial Resins

resin laminates, Nos. 14 and 15, gave the best wear-rates (approximately 11 mg. loss per 1000 rev.).

Resin No. 14 was furnished with a modifier, and a series of laminates were made in which the per cent of modifier in the resin was varied. In Fig. 7 are shown the wear-rates for various percentages of the modifier for laminates made with unbleached sulphite paper and with bleached rag paper. Without the modifier in the resin, the wear-rate for the rag base laminate is better than that made with the unbleached sulphite base laminate, but as the per cent of modifier is increased the wear-rates for the two kinds of laminates approach approximately the same value. When this same modifier was added to one of the other resins, an improvement was observed in the wear-rate of the laminate.

Specimen No. 13 (Fig. 6) was a laminate similar to those above using a melamine formaldehyde resin. The wear-rate for this laminate was 21 mg. loss per 1000 revolutions, although wear-rates as low as 11 mg. loss per 1000 revolutions have been obtained for transparent and opaque melamine impregnated sheets used for surfacing plywood and other board materials. These surfacing sheets consisted of only one or two layers of paper and the lower wear-rate may be accounted for on the basis of variation in wear-rate with sheet thickness described above.

Thermoplastic: Six different cellulosic type resins coated to paper base gave wear-rates ranging from about 30 to 60 mg. loss per 1000 revolutions (Fig. 6) and a paper base laminate made from a mixture of 50% phenolic and 50% of a resin by-product resin had a wear-rate of about 54 mg. loss per 1000 revolutions.

Paper Bases

Phenolic laminates made with different paper bases showed that certain fibers possessed better resistance to abrasion than others. The range of abrasion values obtained are shown in Fig. 8.

A number of unbleached sulphite papers were impregnated and laminated under like conditions with a representative low-pressure phenolic resin. The wear-rates varied from 20.4 to 31.4, with an average of 27.6 mg. loss per 1000 revolutions. . Bleached sulphite laminates made under identical conditions had wear-rates from 11.7 to 21, with an average of 16.2 mg. loss per 1000 revolutions.

The wear-rates on laminates made from rag paper varied from about 10.4 to 21, with an average of 14.5 mg. loss per 1000 revolutions. There was no difference between bleached and dyed rag papers.

Laminates made from unbleached sulphite papers

varying in thickness from 2.3 to 6.0 mils showed no variation in the wear-rates.

The orientation of the fibers in a paper base laminate plays an important part in the abrasion resistance. In all of the above specimens the lay of the fibers was parallel to the surface tested. A specimen was made in which the fibers were perpendicular to the surface and the wear-rate for this laminate was of the order of 3.5 mg. loss per 1000 revolutions, comparable to sheet iron.

Summary

For measuring one type of abrasion resistance the Taber Abraser is a convenient research tool and the wear-rates obtained by the loss-in-weight method provide a reasonable comparison between associated materials. Reproducible results are obtained when a definite procedure is followed and certain precautions are taken, such as, giving the specimen an initial run, periodic weighings, and periodic resurfacing the abrading wheels.

The abrasion resistance of paper base plastics as determined by the Taber Abraser can be summarized as follows:

1. The abrasion resistance of thermosetting laminates can generally be classified as good, i.e., better than wood and pressed boards, and comparable to the softer metals, aluminum and copper.

2. Paper base laminates made with commercial phenolic resins vary in abrasion resistance but it appears that the abrasion resistance of the resins can be improved by the use of additional agents to such a degree that the wear-rate of the laminate is independent of the paper base.

3. In general rag paper and bleached sulphite paper base laminates have equal abrasion resistance and are better than unbleached sulphite paper base laminates (except as noted in 2).

4. The abrasion resistance of paper base laminates decreases as the number of impregnated sheets per panel increase up to a certain point and then remains constant.

5. Fiber orientation affects the abrasion resistance of the laminates.

6. The abrasion resistance of laminates is unaffected by moisture up to about 75% relative humidity, but decreases rapidly at higher humidities.

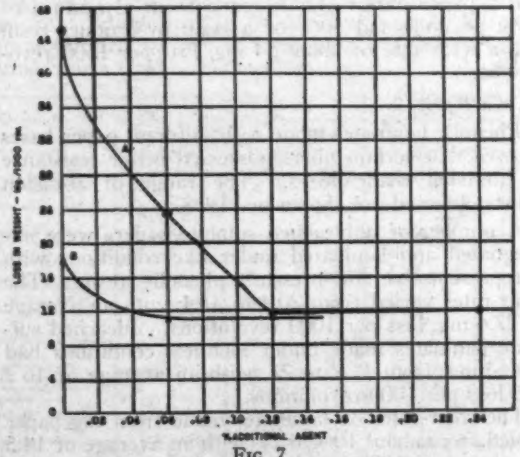


FIG. 7

Variation of Abrasion of Paper Base Plastic with Per Cent of Additional Agent for (A) Sulphite Paper Laminate and (B) Rag Paper Laminate

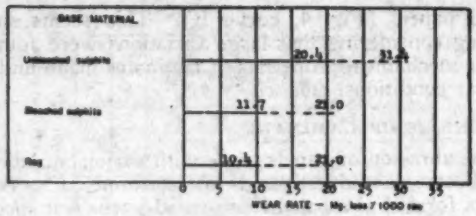


FIG. 8

Relative Abrasion Values of Sulphite and Rag Laminated Plastics

7. The abrasion resistance of laminates does not vary with resin contents between 35% and 48% or with sheet thickness up to 6 mils.

Literature Cited

1. Croup, A. H., Effect of moisture on the physical properties of paper base plastics. *Paper Trade J.* (in press).

Industrial Management

The Macmillan Company has just issued Industrial Management by Asa S. Knowles, Dean of School of Business Administration, Rhode Island State College and Robert D. Thompson, Professor of Industrial Management, Northeastern University and general manager of the Thompson Manufacturing Company. (791 pp. 5¾ x 8¾). The principles presented are not untried theory, but have been formulated and recorded after successful application in many types of manufacturing industries. Much of the material has not hitherto appeared in organized textbook form prior to publication in this volume. This is particularly true of the parts dealing with management of physical property, production control and cost control. A feature of the book is the presentation of problems for solution.

Among the subjects covered are budgeting, selection of site, machinery, equipment, services and buildings, maintenance, plant layout, motion study, material handling, storekeeping, safety and health, organization and morale, selection and training of employees, job evaluation, merit rating, employee compensation, development and engineering, and cost control.

The plant layout problem of the Nelson Corrugated Box Company is discussed in detail. The book is well illustrated with photographs, drawings and charts.

Copies may be obtained from the Book Department of the Technical Association of the Pulp and Paper Industry, 122 East 42nd street, New York 17, N. Y. at $4.50 per copy.

Chain Belt Gets Fourth Award

The Chain Belt Company of Milwaukee has just received an other Army-Navy "E" star. This makes the fourth time that official commendation from Washington has been directed to Chain Belt. The company received its original Army-Navy "E" pennant award September 19, 1942.

In addition to the company's regular products which are widely distributed among other producers of war equipment and more essential civilian needs, Chain Belt Company has produced since 1941 medium size howitzers, pack howitzers, 120 millimeter anti-aircraft guns, field guns, refuse grinders for transports and landing barges, tank turrets, gun shields, traction shoes for amphibious landing craft and ammunition hoists for other Naval units.

The Industrial Uses and Marketing Problems of Tall Oil*

By Ralph H. McKee[1]

Abstract

While there has been considerable development in the refining of tall oil in the past few years, the need for further improvement in the processes is indicated. The soap, varnish and paint, textile, cutting oil, lubrication, insecticide, and synthetic resin manufacturers are a few of the industries that would have a use for an improved product.

The need for research in reference to certain specific problems is indicated. Changing of the linoleic acid portion to the conjugated type, freeing the fatty acids from the resins, and the isolation of Steele's abietic acid are mentioned; the solution of which will increase the value of tall oil as a raw material.

The marketing of tall oil is best accomplished by a cautious approach inasmuch as it is a new product and further refinements will be necessary.

Because at first, and incorrectly, tall oil was considered to be primarily a mixture of oleic and ordinary abietic acid, it was used for certain purposes, and still is, where mixtures of these acids would serve, such as soaps for emulsions of asphalts and petroleum oils and for other low-grade soaps.

With later and more exact knowledge of the true composition, better purification methods were developed in Sweden, then these methods were carried to Germany, and still later, brought to the United States. By these crude purification methods much of the color and odor were removed and products higher or lower in the fatty acid content than the original oil were offered commercially. These found some, but not large, acceptance in many industries.

With knowledge of tall oil increased by study, experience, and time, there is now, from the several processes which have since been developed, products available to the market which can undergo chemical transformations, to give products useful in many types of industries.

It can with assurance be stated that the future peace-time market outlets will depend more than ever before on the degree of refining. First, the removal of color and odor; second, the stabilization of the product; and thirdly, on the separation of the fatty acids from the resin acids.

In the past, fairly well decolorized tall oils could be sold as a low grade substitute for higher priced vegetable oils and fats, particularly in the soap and varnish industries. In the future these markets cannot be relied upon to use the tall oils unless further refinements and separation into components are made.

Trade Demands

The following seem to be the trade demands:

1. The soap industry wants a stable lighter colored tall oil than the oils now on the market, and next to light color the industry wants the resin acids substantially free of fatty acids and stabilized as to color, and the fatty acids substantially free of resin acids. For such products the market is potentially very large and the price should be 2 or 3 cents a pound higher than the present tall oil price.

2. The varnish industry has definite demands as to heat stability of the tall oils; next to heat stability and a fair color the industry wants separation of the fatty components from the resin acids. A resin acid containing 20% or less of fatty acids, and a fatty acid containing but 5 to 20% resin acids would seem to be satisfactory. A large market awaits such products.

3. The paint industry can use enormous quantities of the fatty acid fraction of tall oil to replace the linseed oil acids, if the linoleic acid present is largely changed, as can readily be done, to the conjugated isomer of linoleic acid. Color is also a requirement.

4. Metallic driers can use large amounts of tall oil. Color is not particularly important, but freedom from oxidized oils and resin acids is important since these break down in the process of making the driers. A tall oil carrying a large percentage of conjugated linoleic acid seems to be the desired oil.

5. The textile oil industry wants an oil with light color, color stability, the least possible resin acids, good odor, and stability to air oxidation. It represents a fairly large market.

6. The cutting oil industry wants light color, preferably the fatty acid fraction with least possible resin acids. In some formulations the tall oil fatty acids are substituted for oleic acid, hence resin acids would be objectionable. The market is large.

7. The lubrication grease industry wants the fatty acid fraction of tall oil. A few per cent of resin acids can be tolerated; color and odor are items, but color stability and chemical stability to heat are more important. The market is large.

8. Insect spray and disinfectants use some tall oil for emulsification purposes. The market is fairly large, in fact could be substantial, and much low-grade tall oil can be used. This is an outlet for low-grade tall oil.

9. Asphalt emulsions are used in large volume, and again low-grade tall oil meets the need.

10. The soluble oil industry, particularly the sulphonated oil industry, caters to the textile, leather, and wetting agent industries. It has definite demands as to color, color stability, and low resin acid content. Oils of 30% or less resin acids are generally satisfactory. This is a sizeable market.

11. The synthetic resin market is potentially larger than the present use of tall oil indicates. Light color, color stability and not more than 10% of resin acids in the fatty acid fraction would open the synthetic resin and plastic markets for refined tall oils. For another type of plastic the resin acid, if free from fatty acid, would seem to be well adapted. Fractional distillation is definitely necessary to reach this market in a most favorable way.

* Presented at the meeting of the Byproducts Committee of the Technical Association of the Pulp and Paper Industry held in Savannah, Ga., Oct. 18-19, 1944.

[1] Member TAPPI; Consulting Chemical Engineer.

Compared with a few years ago, say 2 years ago, the demand for a higher degree of refining, and particularly for fractional separation of the fatty acids from the resin acids, is becoming increasingly compelling. Therefore, to stay in the tall oil business means simply to be progressive in tall oil processing. There will be little room for the so-called "refined" tall oils of original resin acid content and mediocre decolorization after really well processed tall oils begin to appear on the market.

Lately there has been more exact knowledge of the composition of tall oil. The early supposition of it being essentially a mixture of oleic acid, ordinary abietic acid, and a few per cent of a particular sterol is 90% incorrect. Instead, it has been shown to be a mixture of linoleic acid, linolenic acid with only a small percentage of oleic acid, and Steele's abietic acid is 60 to 90% of the resin acids, while the non-acid portion contains 2,2 dihydrostigmasterol and lignoceryl alcohol. The relative proportions of these vary with the wood used, with the variations in cooking, and with the methods used in refining the crude tall oil.

These constituents are more valuable than the ones formerly thought to be present, e.g., oleic acid ("Red Oil") has a peacetime market of about 12 cents a pound, but linoleic acid, 19 cents a pound; similarly, rosin averages 4 cents a pound and abietic acid is quoted at over 8 cents a pound. Refined tall oil sells around 5 cents a pound.

However, do not get too enthusiastic about this situation. Much thought and time will have to be spent before the products of highest value and largest profit will be obtained from tall oil. Moreover, only a comparatively few industrial organizations are as ready to spend money for research as they are for new buildings or a new steam plant; yet normally the payment for the use of trained brains pays far higher dividends.

Possible Developments

May the author mention some of the problems that the industry will have to solve in the laboratory and apply in the plant?

The primary fatty acid present is the linoleic acid having the group $-CH=CH-CH_2-CH=CH-$ where probably the double bonds are in the 9 and 12 positions, but a part is the conjugated linoleic acid having the group $-CH=CH-CH=CH-$. Whether these double bonds in the conjugated acid are in the 9 and 11 or 10 and 12 positions, the author does not know. Of the fatty acids, 75% is linoleic, the remainder is about 6% linolenic and 19% oleic acid. All or nearly all of the common 9-12 linoleic acid can be changed to the conjugated type and if it is done, there will be a better linoleic acid for the paint and varnish trade than it has ever hitherto had available.

If the fatty acids can be obtained free from the resin acids, these fatty acids will be ready to enter the food field. Only lately has it been appreciated that linoleic acid is an essential constituent of food and that without it we die.

The abietic acid present is largely, if not exclusively, the readily oxidizable one known as Steele's acid. Accordingly, it probably is one of the abietic acids having a conjugated structure. If so, it, like butadiene and other conjugated compounds, will probably, under the influence of catalysts, give polymers, and thereby a new type of plastics will be available. It may be a hard task to isolate this Steele's abietic acid without decomposing it or causing it to change to other compounds, but it will be well worth while, if it can be done.

Little has been said about the neutral constituents of tall oil, although they constitute about 10% of the crude tall oil. The reason for the lack of emphasis on this subject is because so little is known about these constituents.

The 2,2 dihydrostigmasterol is closely related to the male sex harmone androsterone. It only needs the replacement of a radical R by oxygen O. This, however, is more readily said than done. By irradiation with ultra violet light it gives a vitamin of the type of ergosterol, but less active.

As to the lignoceryl alcohol, $C_{24}H_{49}OH$, the author now knows of no commercial possibility of its use. It may be the same as carnaubyl alcohol, if not, it is an isomer of carnaubyl alcohol, an alcohol found as an ester in lanolin, i.e., wool grease.

It is well known, however, that this neutral portion of tall oil as a whole, possesses high emulsifying properties and is useful for the production of emulsions.

Marketing

To technically trained men there are only a few words to say regarding "marketing." In putting out a new product or a new and better grade of an old product, the sales department is strongly advised to first get it tried out by one of the smaller consumers having a well trained technical staff, with whom you have pleasant relations, and then, after it has been proven satisfactory, offer it to the larger users. It may not prove satisfactory in the form or quality first made.

Also encourage the pricing of the product at first at a liberal profit margin. It is easy to lower prices later, but difficult.

They can be raised, but it promotes consumer antagonism.

Third, in sales literature omit exact analyses of the product being offered for sale. Tall oil is a by-product and so varies in composition, and the resulting products made from it will vary from month to month. If exact analyses are printed, they will be taken as specifications, and it may be difficult to furnish a product which meets the analyses given in the circular.

Varnish Constituents

Interscience Publishers, Inc., have just issued a 496 page book (6 x 8¾) entitled "Varnish Constituents" by H. W. Chatfield, varnish research chemist and department manager of Jenson & Nicholson, Ltd., Stratford, London, Eng. It is a review of the present position in regard to the various raw materials used for varnish making and surface coatings.

Among the subjects covered are natural and synthetic drying oils, acids, monoglycerides, natural oil varnish resins, including tall oil, its production, purification, uses, and esters, natural spirit varnish resins, modified natural resins, synthetic resins, including the alkyds, phenols, ureas, melamines, polystyrenes, vinyls, etc., solvents and diluents, waxes and rubbers.

Copies may be obtained from the Book Department of the Technical Association of the Pulp and Paper Industry, 122 East 42nd street, New York 17, N.Y., at $7.00 per copy.

Index, Technical Section Paper Trade Journal Volume 119, July to December, 1944

Prepared by Clarence J. West, Chairman, Committee on Abstracts and Bibliography, TAPPI

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New TAPPI Members

The executive committee of the Technical Association of the Pulp and Paper Industry has elected the following to membership:

Ernest B. Brown, general manager, The Whakatane Paper Mills, Ltd., Whakatane, New Zealand.

William C. Chapman, head, Factory Technical Service Department, Union Bag and Paper Corporation, Savannah, Ga., a 1940 graduate of the University of Florida.

Albert S. Goodrich, chief engineer, Hammermill Paper Company, Erie, Pa., a 1915 graduate of Worcester Polytechnic Institute.

Theodore S. Gross, president, Container Testing Laboratories, Inc., 45 East 22nd street, New York City, a 1934 graduate of the University of Virginia.

Robert D. Harper, industrial development specialist, R. D. Harper, Inc., 508 West 52nd street, New York City, a 1927 graduate of Williams College.

S. E. Hazelquist, technical director, Weyerhaeuser Timber Company, Pulp Division, Longview, Washington, a 1930 graduate of the University of Washington.

Captain O. C. William Johnsen, D.F.C., Chairman, Johnsen, Jorgensen & Wettre, Ltd., 26 Farringdon street, London, E. C. 4, England.

W. F. Kallock, superintendent, McLaurin-Jones Company, Ware, Mass., a 1931 graduate of the University of Michigan.

John B. Kohler, president and chief engineer, the Kohler System Company, 159 E. Chicago avenue, Chicago, Ill., 1926 graduate of the University of Pennsylvania.

James Lovatelli, general manager, Loyal Employment Counsellors, 8 East 41st street, New York City. Attended College of St. Servant (France), Galileo (Milan, Italy), Maria Hilf (Switzerland).

George E. Mackin, industrial specialist, Pulp and Paper Division, Forest Products Laboratory, Madison, Wis., a 1927 graduate of the University of Wisconsin.

Robert L. McEwen, research chemist, Buffalo Electro-Chemical Company, Buffalo, N. Y., a 1935 graduate of Princeton University.

I. Laird Newell, research chemist, the Henry Souther Engineering Company, Hartford, Conn., a 1930 graduate of Trinity College.

Sereno G. Norton, liquid products supervisor, Naval Stores, Hercules Powder Company, Brunswick, Ga., a 1917 graduate of Grinnell College.

Edward S. Shanley, assistant to research director, Buffalo Electro-Chemical Company, Buffalo, N. Y., a 1934 graduate of Clarkson Technical College.

Norman G. Sixt, chief chemist, McLaurin-Jones Company, Inc., Brookfield, Mass., a 1928 graduate of Rensselaer Polytechnic Institute.

Earl R. Stivers, director of research, Package Research Laboratory, Stapling Machines Company, Rockaway, N. J., a 1915 graduate of the University of Wisconsin.

TAPPI Notes

George H. McGregor, formerly of the Swenson Evaporator Company is now with the Minnesota and Ontario Paper Company, International Falls, Minn.

Riley M. Bates, formerly of the Thomas M. Royal Company is now general manager of the Coin Meter Eastern Company, 32-61 111th Street, Corona, L. I., N. Y.

Howard D. Hyman, formerly of the J. R. Booth Company is now vice president of Alexander Flack, Ltd., Ottawa, Ont.

James Rogers II is now vice president and general superintendtn of J. & J. Rogers Company, Ausable Forks, N. Y.

Fred W. Saunders, formerly of the Gilbert Paper Division of the National Starch Products Company, 36th Place and Washtenau street, Chicago, Ill.

W. Ronald Benson, formerly of the National Paper Products Company is now sales representative for Carl F. Miller Company, Seattle, Wash.

Frederick Wierk, formerly of the Dorr Company is now engineer for Merritt, Champman & Scott, New York, N. Y.

Ralph E. Glading, formerly of the West Virginia Pulp and Paper Company is now research chemist for the A. B. Dick Company, 720 W. Jackson Blvd., Chicago, Ill.

Frederick L. Hudson, formerly of Alex. Pirie, Ltd., is now research and development chemist for British Industrial Plastics, Ltd., Oldbury, England.

Gerard L. Swope of the Owens-Illinois Can Company is now manager of the process and products research division of the Owens-Illinois Glass Company, Toledo, Ohio.

Lewis K. Burnett is now assistant manager of the materials control division, Curtis Publishing Company, Philadelphia, Pa.

John J. Erchul, formerly of the Celotex Corporation is now in the research and development laboratory of the Pioneer Flintkote Company, Los Angeles, Cal.

E. M. Leavitt, formerly of Hollingsworth & Whitney is now general manager of the Sonoco Products Company, Gardwood, N. J.

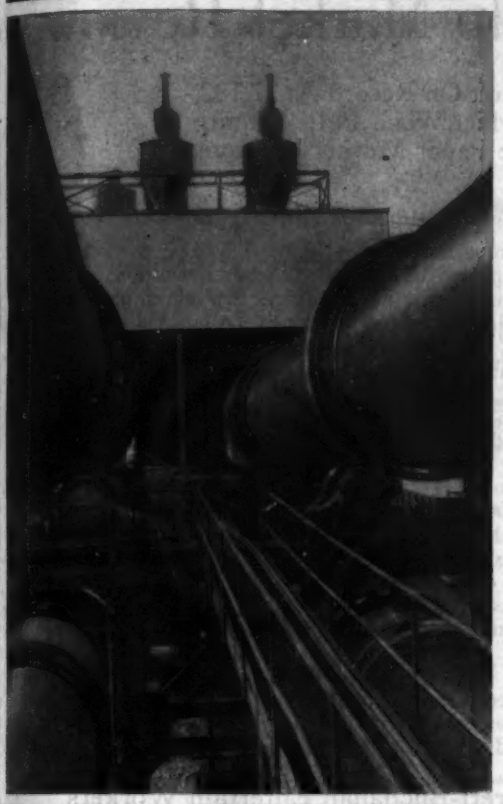
The Watertown Group of the TAPPI Empire State Section will meet at the Woodruff Hotel, Watertown, N. Y., on Thursday, February 8, 1945 at 6.30 P.M. F. W. Roberts of Watertown will discuss the Roberts Grinder.

On Monday evenings, January 22 and 29, at 7:15 P.M. Lewis B. Miller, Chairman of the TAPPI Water Committee and consulting engineer for W. H. & L. D. Betz Company, will lecture on Sewage and Waste Disposal in the Physics Amphitheatre, St. Joseph's College, 54th and City Line, Philadelphia, Pa. Members of the Technical Association of the Pulp and Paper Industry are invited to attend.

Since many of the hotels in New York City have cancelled room reservations made for those planning to attend conventions in February, individuals planning to be in New York during that month should have their reservations reaffirmed.

Bantam Bearings Issues Bulletin

The Torrington Company, Bantam Bearings Division, South Bend 21, Ind., announces a revised Bulletin, No. 105, entitled "High Capacity Ball Reciprocating Bearings", which covers a new list of recommended sizes. The high capacity ball bearing is designed for applications where ball bearing antifriction qualities are desired in rotation, reciprocation, oscillation or combinations thereof. The construction employs a helix to separate the balls and retain them, thus permitting the use of approximately twice as many balls as the conventional sleeve type retainer. The bulletin also gives the operating capacities per row of balls for 100 rpm., based on an average life of 3,000 hours, and other pertinent engineering data. Copy of Bulletin No. 105 will be sent on request.



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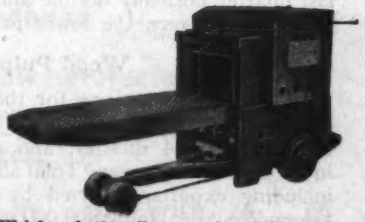
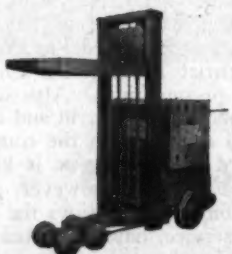


Weight of 4000 lbs. capacity—2830, without battery. Truck turns from a 5' 4" aisle into an intersecting aisle of 4'.



Platform 24" wide, 53" long and 11" high, low position. Capacity 2000, 3000 and 4000 pounds.

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New York Paper and Pulp Market Review

Paper Production For 1944 Is Next Highest On Record At 17,182,888 Tons—More Pulpwood Needed To Meet Wood Pulp Requirements — Cotton Cuttings Active — Waste Paper Market Is Strong.

Office of the PAPER TRADE JOURNAL,
Wednesday, January 24, 1945.

Heavy demand for paper continues to maintain a tight wholesale market in many items. Production for the year 1944, from the preliminary figures of the Department of Commerce, totaled 17,182,888 tons, compared with 17,035,688 tons in 1943, with 17,082,852 tons in 1942, and with the record output of 17,762,365 tons in 1941. Production of newsprint groundwood, book, fine, and tissue papers was lower in 1944 than in 1943. Authorized minimum production of paper for the first 1945 quarter is 4,402,000 tons, compared with 4,358,000 tons authorized in the first 1944 quarter.

The index of general business activity for the week ended January 13 declined to 147.3, from 153.9 for the previous week, compared with 147.2 for the corresponding week last year. The index of paper board production was 155.5, compared with 176.0 for the previous week, and with 147.2 for the corresponding week last year.

Paper production for the week ended January 13 was estimated at 81.0%, compared with 88.7% for 1944, with 90.2% for 1943, with 88.0% for 1942, and with 105.0% for the corresponding week for 1941.

Paper board production for the week ended January 13 was 95.0%, compared with 93.0% for 1944, with 88.0% for 1943, with 102.0% for 1942, and with 78.0% for corresponding week in 1941.

Pulpwood

The urgent need for steady receipts of pulpwood is evident in the recent WPB order requesting that lumber and pulpwood cutting be given every possible consideration for high rating. Over-all receipts in the last quarter normally decline and November receipts of pulpwood were 1% lower in 1944 than in 1943.

Wood Pulp

Wood pulp allocations for the first 1945 quarter, of 2,644,000 tons, compares with 2,660,000 tons in the fourth 1944 quarter, and with 2,608,000 tons in the first 1944 quarter. Total allocations for all uses, including exports, reported by the Department of Commerce, are about 2,903,000 tons. Reports indicate that on the basis of 1.678 cords of pulpwood per ton of wood pulp, 4,437,000 cords of pulpwood would be required, or about 448,000 cords more than was consumed in the first 1944 quarter.

Rags

Demand for cotton cuttings continues active and the market is active. Prices are strong at ceiling levels on all major grades of new rags. The supply situation continues to be reported as slowly deteriorating.

Only a slight improvement in activity is reported in old cotton rags at this date. Buying is limited in a relatively narrow market. Demand for old whites is reported fair to moderate, while trading in old blues and in the roofing grades is slow.

Old Rope and Bagging

No important change in the old rope market has been reported this week. All-over demand is active for all important fibers. Prices are at ceiling levels.

Trading in scrap bagging continues limited in volume. Demand is light at this date, prices are soft and continue nominal.

Old Waste Paper

Mill demand for old waste paper continues on an urgency basis. Preliminary figures indicate that collections for 1944 are about 7,000,000 tons or about 1,000,000 tons short of the goal of 8,000,000 tons set for 1944. The charted trend of receipts continues to indicate a slight decline, while inventories are more sharply downward.

Prices for all grades of paper stock are strongly maintained at ceiling levels.

Twine

Current demand for twine is moderately active. No important change in the market situation has been reported this week. Prices are firm.

Garrett-Buchanan Entertain Workers

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., January 22, 1945—On Friday, January 19, the Garrett-Buchanan Company entertained their employees from the Baltimore, Maryland, Lancaster and Reading, Pa., branches together with those from their main office in Philadelphia at its annual dinner in the Downtown Club. During the dinner an orchestra played, and after dinner, accompanied by the strains of the orchestra, all the employees and executives danced until 11 P.M.

President Morgan H. Thomas delivered a stirring message to all those present, and announced that war bonds were being sent to 38 men employees and one WAC now serving in the Armed Forces. Genial George Weaver, first vice president, was toastmaster, while John E. Gheen, who was guest speaker, kept the audience in guffaws of laughter with his humorous anecdotes.

One of the features of this annual dinner was the presentation of gold signet rings set with onyx to those eligible for membership in the 25-year club, which now numbers twenty-six members. The new enrollees in the Club are Andrew Alker, Al. Brumbach, M. Cullen, H. Gilbert and H. Sloan, who received rings suitably engraved, and as has been the custom since the club was organized Rev. Walter Bruggeman, Pastor of Christ Presbyterian Church, Penn Wynne, made the presentations. Also in the spotlight were three brothers, John Merrill and Doyle Heverly, whose combined service with the company totals 104 years, a record that so far as is known remains unchallenged. The orchids, however, go to president Morgan H. Thomas, who enjoys the enviable record of 46 years service, having started as a clerk writing bills in longhand.

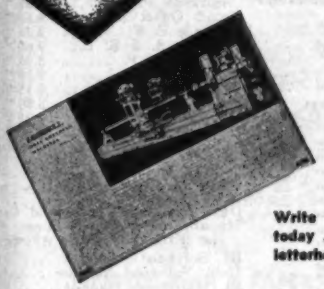
USE THE TIME YOU LOSE . . .

PUT ONE OF THESE AUTOMATIC GRINDERS IN YOUR OWN SHOP

Most mills require enough roll grinding and refinishing to utilize profitably, a grinder in their own plants.

Investing in a good roll grinder will save the time lost in transporting rolls to and from an outside source of grinding . . . it will eliminate the expense of transportation and of protecting rolls en route.

Made in three sizes, there is no better machine than the completely automatic Lobdell Roll Grinder, the choice of many leading mills. It grinds a perfect crown of any size, on any length roll and maintains a constant and uniform grinding pressure . . . automatically.



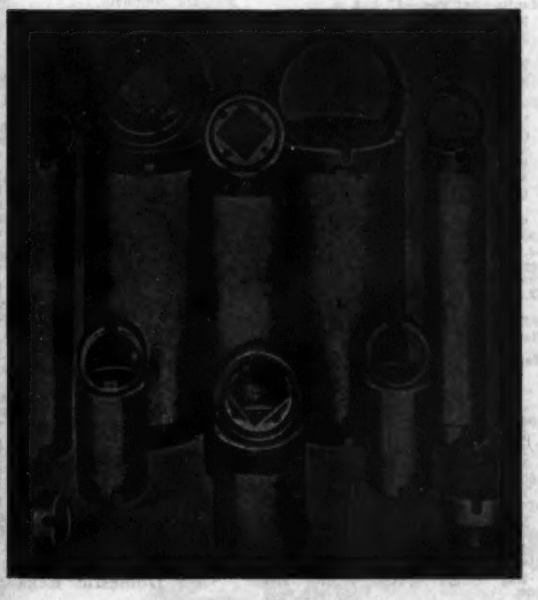
Write for catalog today . . . on your letterhead, please.

LOBDELL

COMPANY — *Established 1836*

Built and sustained upon the rights to FREE, COMPETITIVE PRIVATE ENTERPRISE guaranteed by the Constitution of the United States

WILMINGTON 99, DEL.



ELIXMAN

CAPS

Straight wound paper cores made in sizes from 2" to 10" inside diameter with any thickness wall required.

Long draw protected slot caps of heavy gauge steel in all standard sizes.

Heavy duty caps with reenforced square hole. This patented feature of reenforcement gives added strength and durability.

CORES

Samples of caps or cores will be gladly submitted

ELIXMAN PAPER CORE COMPANY, INC.

CORINTH, N. Y.

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, January 24, 1945.

BLANC FIXE—Prices on blanc fixe continue to conform to prevailing levels. Demand is reported fair. The pulp is quoted at $40 per ton, in barrels, at works. The powder is quoted at $60 per ton, f.o.b. works.

BLEACHING POWDER—All-over demand is reported heavy. Production is high and civilian demand is reported in excess of stocks. Quotations are unchanged. Bleaching powder is currently quoted at from $2.50 to $3.10 per 100 pounds. All prices in drums, car lot, f.o.b. works.

CASEIN—OPA maximum prices on processed acid-precipitated casein are as follows: 10,000 pounds or more, 24 cents per pound; 2,000 pounds, 24¼ cents per pound; less than 2,000 pounds, 24¾ cents per pound f.o.b. shipping point.

CAUSTIC SODA—Demand very heavy. Production large, but under demand. Market continues tight. Prices unchanged. The flake form is still scarce. Solid caustic soda is currently quoted at $2.30 per 100 pounds. The flake and ground are currently quoted at $2.70 per 100 pounds. All prices in drums, car lots, f.o.b. works.

CHINA CLAY—Current demand is reported moderate on many grades of china clay. Quotations unchanged. Domestic filler clay is quoted at from $7.50 to $15 per ton; coating clay is quoted at from $12 to $22 per ton, at mines. Imported china clay is currently quoted at from $13 to $25 per long ton, ship side.

CHLORINE—Military and all essential requirements heavy with market reported tight at this date. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b. works.

ROSIN—The rosin market reports prices unchanged on some grades this week. "G" gum rosin is currently quoted at $5.79 per 100 pounds, in barrels, at Savannah. "FF" rosin is currently quoted at $5.75 per 100 pounds, in barrels, at New York. Seventy per cent gum rosin size is currently quoted at $6.06 per 100 pounds, f.o.b. works.

SALT CAKE—Prices on salt cake continue to be reported unchanged. Demand fair during the current week. Domestic salt cake is currently quoted at $15 per ton, in bulk. Chrome cake is currently quoted at $16 per ton. All quoted prices in car lots, f.o.b. shipping point.

SODA ASH—Heavy demand for soda ash is reported to absorb current production. Market is tight. Shipments reported more prompt. Prices continue to conform to prevailing levels. Quotations on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Corn market firm. Offerings in volume and supply situation is reported favorable. Demand continues heavy. Prices unchanged on starch. Pearl is quoted at $3.72 per 100 pounds. Powdered starch is quoted at $3.83 per 100 pounds. All prices in bags, car lots f.o.b. Chicago.

SULPHATE OF ALUMINA—Demand good. Supply situation is satisfactory. Prices of the commercial grades are currently quoted at from $1.15 to $1.25 per 100 pounds. The iron free is currently quoted at $1.85 per 100 pounds. All prices in bags, car lots, f.o.b. works.

SULPHUR—Current consumption of sulphur continues heavy. Market situation unchanged. The quotation on annual contracts continues at $16 per long ton, f.o.b. mines. The current price on contracts at Gulf Ports is $17.50 per long ton.

TALC—Demand reported good. Domestic grades are currently quoted at from $16 to $21 per ton at works.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

Standard News, per ton—		
Roll, contract	*$58.00	@ —
Sheets	66.00	" —
* OPA Maximum Price.		
Kraft—per cwt.—Carload Quantities Zone A, f.o.b. Mill		
Superstandard Wrapping	*$5.25	@ —
No. 1 Wrapping	*5.00	" —
Standard Wrapping	*4.75	" —
Standard Bag	*4.375	" —
* OPA Manufacturers' Prices.		
Tissues—Per Ream—Carlots		
White No. 1	1.12½	" —
White No. 1 M. G.	1.10	" —
White No. 1½	1.00	" —
White No. 2	.90	" —
Anti-Tarnish M.F.	1.20	" —
Colored	—	" —
Kraft	.95	" —
Manila	.90	" —
Toilet—1 M. Sheets—Per Case		
Unbleached	4.25	" —
Bleached	5.70	" —
Unbl. Toilet, 1 M.	4.16	" —
Bleached Toilet	5.70	" —
Paper Towels, Per Case—		
Unbleached, Jr.	2.20	" —
Bleached, Jr.	3.20	" —
Manila—per cwt.—C. l. f. a.		
No. 1 Jute	11.25	@ —
No. 1 Manila Wrapping, 35 lb.	6.00	" 6.25
No. 2 Manila Wrapping, 35 lb.	5.75	" 6.00
Boards, per ton—		
News	*50.00	@ —
Chip	*50.00	" —
Sgl. Mla. Li. Chip	*62.00	" —
White Pat. Coated	*75.00	" —
Kraft Liners 50 lb.	*63.00	" —
Binders Boards	84.00	" 116.00

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5.; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1	$39.10 @ $46.00	$40.25 @ $47.25
100% Rag	32.20 " 37.75	33.35 " 39.25
85% Rag	.... "	29.90 " 35.00
75% Rag	23.00 " 27.00	24.15 " 28.25
65% Rag	.... "	22.80 " 27.75
50% Rag	18.70 " 22.75	19.90 " 24.25
25% Rag	16.40 " 20.00	17.55 " 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$10.55 @ $12.75	$11.70 @ $14.25
No. 2	9.65 " 11.75	10.80 " 13.25
No. 3	9.20 " 11.25	10.35 " 12.50
No. 4	8.90 " 10.75	10.05 " 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper, Delivered in Zone 1:

No. 1 Glossy Coated	$13.65	@ $15.9
No. 2 Glossy Coated	12.40	" 14.0
No. 3 Glossy Coated	11.60	" 13.2
No. 4 Glossy Coated	11.15	" 12.7
No. 1 Antique (watermarked)	10.25	" 11.7
No. 2 Offset	9.60	" 11.0
A Grade E. F.	9.35	" 10.7
A Grade S. & S. C.	9.60	" 11.0
B Grade E. F.	8.85	" 10.2
B Grade S. C.	9.10	" 10.5
C Grade E. F.	8.55	" 9.7
C Grade S. C.	8.80	" 10.0
D Grade E. F.	8.25	" 9.5
D Grade S. & S. C.	8.50	" 9.7

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers Prices, Less Freight Not Exceeding OPA Allowances.

B1. Softwood Sulphite	$68.0
Unbl. Softwood Sulphite	74.0
Bl. Hardwood Sulphite	63.0
Unbl. Hardwood Sulphite	71.0
Bl. Mitscherlich	61.0
Unbl. Mitscherlich	72.00 @ 62.0
N. Bleached Sulphate	66.0
S. Bleached Sulphate	79.0
N. Semi-Bleached Sulphate	62.0
S. Semi Bleached Sulphate	75.0
N. Unbl. Sulphate	72.0
S. Unbl. Sulphate	63.0
Bl. Soda	72.0
Unbl. Soda	68.0
Groundwood	50.0

Transportation Allowances

Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$13.50
Lake Central	13.50
Southern	16.00
West Coast (in area)	10.50
West Coast (out area)	16.50

	50%-80% Air Dry Weight
Northeast	11.50
Lake Central	11.50
Southern	14.00
West Coast (in area)	9.50
West Coast (out area)	15.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$8.50
Lake Central	8.50
Southern	11.00
West Coast (in area)	7.50
West Coast (out area)	13.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum price

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	6.50	@ 7.25
Silesias No. 1	—	" 5.75
New Unbleached	6.75	" 7.25
Blue Overall	—	" 5.50
Fancy	—	" 3.50
Washables	—	" 3.00
Bleached Khaki Cuttings	—	" 4.25
Unbleached Khaki Cuttings	—	" 3.50

* OPA Maximum Prices.

TRADE MARK

Trinity Bag & Paper Co., Inc.

25 WEST 43rd STREET • NEW YORK 18, N. Y.

Mill Agents and Distributors

PAPER BAGS AND SACKS
All Types and Styles
Self-Opening, Square
Flat and Sacks

WRAPPING PAPERS
Kraft—Bleached and Unbleached
Butchers—Dry and Water Finish
M. G. Papers—Bleached and Unbleached

WRITINGS
Bonds and Ledgers
Index

OTHER GRADES
Envelope, Offset and Printing
Gumming—Bleached and Unbleached
Kraft Specialties of all Descriptions — both Bleached and Unbleached

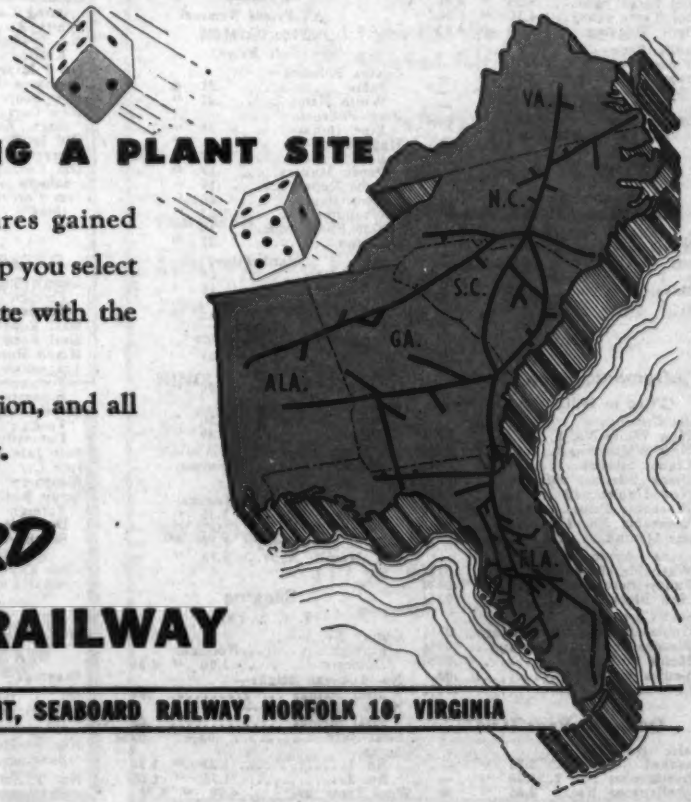
Agents for:

FLORIDA PULP & PAPER CO., PENSACOLA, FLA. • SANTA ROSA PULP & PAPER CO., PENSACOLA, FLA.

BAG PLANTS AT MOBILE, ALABAMA, AND MONROE, LA.

DON'T GAMBLE

IN SELECTING A PLANT SITE



Let us apply the facts and figures gained through years of experience to help you select the location where you can operate with the greatest economy.

Our services involve no obligation, and all inquiries are treated confidentially.

SEABOARD RAILWAY

Write

DALLAS T. DAILY, GENERAL INDUSTRIAL AGENT, SEABOARD RAILWAY, NORFOLK 10, VIRGINIA

Old Rags

White, No. 1—
Repacked .....*1.80 " —
Miscellaneous ....*1.70 " —
White, No. 2—
Repacked .....*2.90 " —
Miscellaneous ....*2.65 " —
Third and Blues—
Repacked .....*2.20 " —
Miscellaneous ....*1.80 " —
Roofing Rags—
No. 1.....*1.55 " —
No. 2.....*1.45 " —
No. 3 (bagging)..*1.35 " —
No. 4.....*1.35 " —
No. 5A.....*1.35 " —
Old Manila Rope.. 5.75 " —
*OPA Maximum Prices.

Foreign Rags

All Prices nominal

New Rags

New Dark Cuttings.. 2.25 ● 2.40
New Mixed Cuttings. 2.00 " 2.20
New Light Silesias.. 5.50 " 5.75
Light Flannelettes... 5.50 " 5.75
New White Cuttings. 7.00 " 7.50
New Light Oxfords. 4.00 " 4.50
New Light Prints... 3.00 " 3.25

Old Rags

No. 1 White Linens. 7.50 " 8.50
No. 2 White Linens. 6.50 " 7.50
No. 3 White Linens. 4.50 " —
No. 4 White Linens. 2.25 " 3.25
No. 1 White Cotton. 4.25 " 4.75
No. 2 White Cotton. 3.25 " 3.75
No. 3 White Cotton. 2.50 " 3.00
No. 4 White Cotton. 1.90 " 2.20
Extra Light Prints.. 2.00 " 2.40
Ord. Light Prints... 1.75 " 2.15
Med. Light Prints... 1.55 " 1.95
Dutch Blue Cottons. 2.25 " 2.50
French Blue Linens. 3.00 " —
Checks and Blues... 2.00 " —
Linsey Garments.... 1.90 " 2.00
Dark Cottons..... 1.50 " 1.60
Old Shopperies..... 1.30 " 1.45
New Shopperies..... 1.45 " 1.50
French Blues..... 2.25 " 2.50

BAGGING

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—
Foreign .....Nominal
Domestic ..... 4.25 ● 4.35
Wool Tares, light.... 4.25 " 4.50
Wool Tares heavy... 4.50 " 5.00
Bright Bagging..... 4.50 " 4.85
Manila Rope—
Foreign ..... — " —
Domestic .....*5.75 " —
Jute Threads..... 5.50 " —
No. 1 Sisal Strings..*4.00 " —
Mixed Strings..... 2.00 " —
*OPA Maximum Price.

Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices, Baled

No. 1 Hard White Envelope Cuts, one cut ..... 3.37½● —
No. 1 Hard White Envelope Cuts.... 3.12½" —
No. 1 Hard White Shavings, unruled. 2.87½" —
No. 1 Hard White Shavings, ruled... 2.50 " —
Soft White Shavings, one cut..... 2.87½" —
No. 1 Soft White Shavings ..... 2.50 " —
Soft White Shavings, Misc. ..... 2.15 " —
No. 1 Fly Leaf Shavings ..... 1.67½" —
No. 2 Fly Leaf Shavings ..... 1.12½" —
No. 1 Groundwood Fly Leaf Shavings 1.25 " —
No. 2 Mixed Groundwood Fly Leaf Shavings ..... .90 " —
Mixed Colored Shavings ..... .75 " —
Mixed Groundwood Colored Shavings.. .90 " —
Overissue Magazines ..... 1.67½" —
No. 1 Heavy Books & Magazines ..... 1.92½" —
Mixed Books..... 1.10 " —
No. 1 White Ledger.. 2.30 " —
No. 2 Mixed Ledger, colored ..... 2.00 " —
New Manila Envelope Cuttings, one cut.. 2.87½" —
New Manila Envelope Cuttings ..... 2.65 " —
Extra Manilas..... 1.95 " —
Mixed Kraft, Env. & Bag Cuttings..... 2.75 " —
Kraft Envelope Cuttings ..... 3.25 " —
Triple Sorted, No. 1 Brown Soft Kraft. 2.50 " —
New 100% Kraft Corrugated Cuttings.. 2.25 " —
No. 1 Assorted Old Kraft ..... 1.75 " —
New Jute Corrugated Cuttings ..... .90 " —
Old 100% Kraft Corrugated Containers 1.75 " —
Old Corrugated Containers ..... 1.40 " —
Box Board Cuttings. .72½" —
White Blank News.. 1.65 " —
Overissue News..... 1.10 " —
No. 1 News..... 1.00 " —
No. 1 Mixed Paper... .95 " —
Old Corrugated Containers ..... .82½" —
Mill Wrappers..... 1.10 " —

Twines

All Prices Nominal

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—
India ..... .21 ● —
White Hemp..... .21 " —
Fine Polished—
Fine India..... .36 " —
Unpolished—
Box ..... .17½" —
Paper Makers..... .17 " —
Tube Rope..... .19 " —
Wall Paper..... .20½" —
Wrapping ..... .21 " —
Soft Fiber Rope... .19 " —
Cotton ..... .25 " —

(Hard Fiber)

Medium Java..... .18 " —
Mex. Sisal..... .16 " —
Manila ..... — " —

PHILADELPHIA

Domestic Rags (New)

(Price to Mill.)

Shirt Cuttings—
New White No. 1..... .07¾
New White No. 2..... .05¾
Light Silesias..... .05¾
Black Silesias, soft..... .03¾
New Unbleached ..... .07½
Washable Prints ..... .04¾
Washable No. 1..... .03
Blue Overall..... .05½
Cottons—According to grades—
Washable shredding ..... .01¾
Fancy Percales ..... .04¾
New Black Soft ..... .03¾
Khaki Cuttings—
Unbleachable Cotton Cuttings .03½
Bleachable Cotton Cuttings.. .04¾
Men's Corduroy ..... .03½
Ladies' Corduroy ..... .03
Cottonades ..... .03¾

Domestic Rags (Old)

White No. 1—Repacked ..... 3.80 " —
Miscellaneous No. 1. 3.20 " —
Miscellaneous No. 2. 2.65 " —
White No. 2—Repacked ..... 3.90 " —
Thirds and Blues—
Miscellaneous .... 1.80 " —
Repacked ..... 2.20 " —
Black Stockings—
(Export) .....Nominal
Roofing Stock—
Foreign No. 1....Nominal
Domestic No. 1... 1.55 " —
Domestic No. 2... 1.45 " —
Roofing Bagging.. 1.35 " —
Old Manila Rope... 5.75 " —

Bagging

(F. o. b. Phila.)

Gunny No. 1—
Foreign .....Nominal
Domestic ..... 3.00 " 3.50
No. 1 Clean bright—
Sisal Strings ..... .84
No. 2 Clean bright—
Sisal Strings ..... .82
Sisal Jute ..... .02½ " .02¾
Scrap—
No. 1..... 3.25 " 3.50
No. 2..... 1.75 " 1.80
Wool Tares hea.. 4.00 " 4.75
No. 1 New Light Burlap ..... 3.00 " 4.00
New Burlap Cuttings 3.75 " 4.00

Old Papers

(F. o. b. Phila)

OPA Maximum Prices, Baled

No. 1 Hard White Envelope Cuts, one cut ..... 3.37½" —
No. 1 Hard White Shavings, unruled.. 2.87½" —
Soft White Shavings, one cut..... 2.50 " —
White Blank News . 1.65 " —
Soft White Shavings

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices, Baled

No. 1 Hard White Shavings, unruled. 2.87½● —
No. 1 Hard White Shavings, ruled... 2.50 " —
Soft White Shavings, Misc. ..... 2.15 " —
No. 1 Fly Leaf Shavings ..... 1.67½" —
No. 2 Fly Leaf Shavings ..... 1.12½" —
No. 1 Groundwood Fly Leaf Shavings 1.25 " —
No. 2 Groundwood Fly Leaf Shavings .90 " —
Mixed Colored Shavings ..... .73 " —
New Manila Envelope Cuts, one cut..... 2.87½" —
Hard White Envelope Cuts, one cut..... 3.37½" —
Triple Sorted No. 1 Brown Soft Kraft. 2.50 " —
Mixed Kraft Env. & Bag Cuttings..... 2.75 " —
Kraft Envelope Cuttings ..... 3.25 " —
No. 1 Heavy Books & Magazines..... 1.92½" —
New Manila Envelope Cuts, one cut..... 2.87½" —
New Manila Envelope Cuttings ..... 2.65 " —
White and Colored Tabulating Cards.. 2.25 " —
Ground Wood Tabulating Cards ..... 1.35 " —
White Blank News.. 1.65 " —
No. 1 Assorted Old Kraft ..... 1.75 " —
No. 1 Mixed Paper... .95 " —
Overissue News..... 1.10 " —
Box Board Cuttings. .72½" —
New Corrugated Cuttings, Kraft..... 2.25 " —
Old 100% Kraft Corrugated Containers 1.75 " —
Old Corrugated Containers ..... 1.40 " —
Jute Corrugated Cuttings ..... 1.07½" —

Bagging

(F. o. b. Boston)

Gunny Bagging—
Foreign .....(nominal)
Domestic ..... — ● 2.50
Sisal Rope No. 1....*4.75 " —
Sisal Rope No. 2....*4.25 " —
Mixed Rope ..... — " 1.55
Transmission Rope—
Foreign .....(nominal)
Domestic ..... 2.75 " 3.00
Manila Rope—
Foreign .....(nominal)
Domestic ..... 5.75 " —
Soft Jute Rope..... 5.25 " —
Jute Car Threads. 3.00 " 3.50
Bleachery Burlap.... 8.50 " 9.00
Scrap Burlap—
Foreign .....(nominal)
Domestic ..... — " 2.75
South American ... — " 3.00
Wool Tares—
Foreign .....(nominal)
Domestic ..... 4.25 " —
Aust. Wool Pouches.. — " 3.00
New Zealand Wool Pouches ..... — " 3.50
New Burlap Cuttings 4.75 " 5.00
Heavy Baling Bagging 4.00 " 4.25
Paper Mill Bagging.. 2.50 " 3.00
No. 2 Roofing Bagging 1.35 " —
*OPA Maximum Price.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—
New Light Prints. .04½● .04¾
Fancy Percales.... .04¼" .04¾
New White No 1. .06¼" .07
New Light Flannelettes ..... .05¾" .06
Canton Flannels, Bleached ..... .06 " .06¾
Underwear Cutters, Bleached ..... .06¼" .06¾
Underwear Cutters, Unbleached ..... .05¼" .06
Silesias No. 1..... .06 " .06¾
New Black Silesias.. .03 " .03¾
Red Cotton Cuttings .03½" .04
Soft Unbleached ... .06½" .06¾
Blue Cheviots .... .05¼" .06
Fancy ..... .02¾" —
Washable ..... .02¾" —
Khaki Cuttings .... .02¾" .03
O. D. Khaki..... .03½" .03¾
Corduroy ..... .03¼" .03¾
New Canvas ..... .06¼" .06¾
B. V. D. Cuttings... .06¼" .06¾

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—
Repacked ..... 3.80 ● —
Miscellaneous .... 3.20 " —
White No. 2—
Miscellaneous .... 2.65 " —
Twos and Blues, Repacked ..... 2.20 " —
Old Blue Overalls... 2.25 " 2.50
Thirds and Blues, Repacked ..... 2.20 " —
Miscellaneous ..... 1.80 " —
Black Stockings .... 3.50 " 4.00
Roofing Stock—
No. 1 ..... 1.55 " —
No. 2 ..... 1.45 " —
No. 3 ..... 1.35 " —
No. 4 ..... 1.35 " —
No. 5, Quality A.. 1.35 " —
Quality B.. 1.20 " —
Quality C.. .95 " —
*Old Manila Rope.. 5.75 " —
*OPA Maximum Prices

Foreign Rags

(F. o. b Boston)

Canvas .....(nominal)
Dark Cottons .....(nominal)
Dutch Blues .....(nominal)
New Checks and Blues..(nominal)
Old Fustians .....(nominal)
Old Linsey Garments....(nominal)
New Silesias .....(nominal)

CHICAGO

Waste Paper

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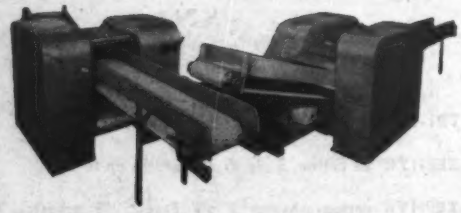

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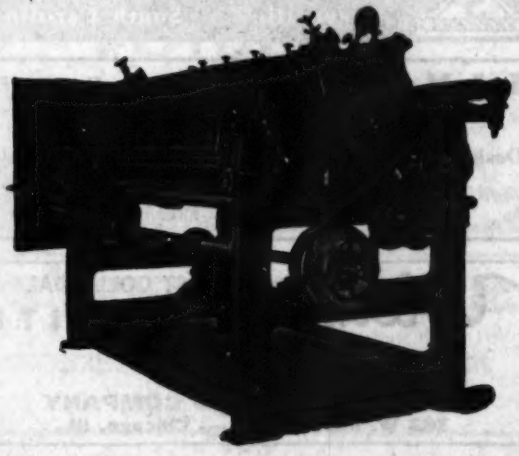

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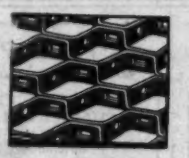

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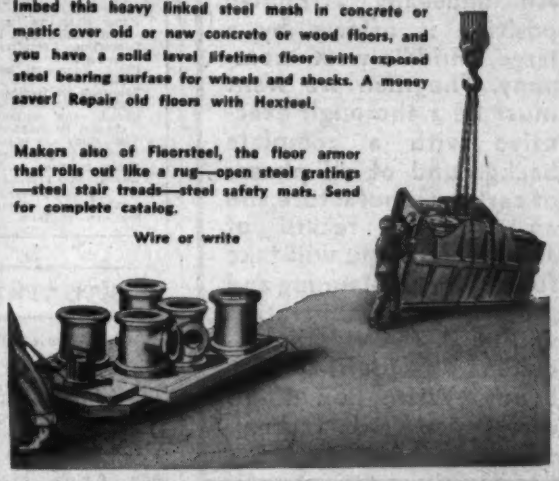

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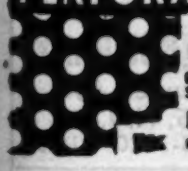

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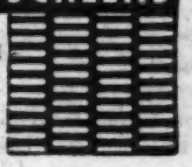

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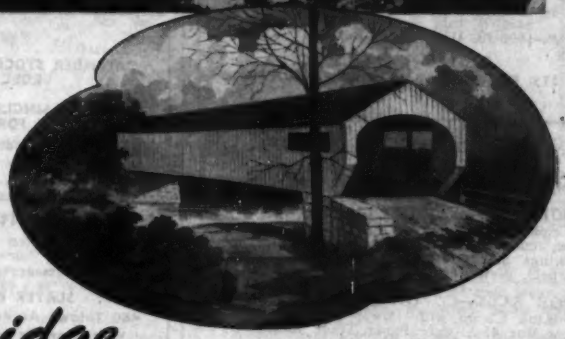

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WANTED TO PURCHASE—Paper mill in operation. Can pay all cash. Large successful mill preferred. Confidential. Address Box 44-770 care Paper Trade Journal. TF

WANTED—Any Item of Paper Tube and Paper Can Machinery, Slitters, Tube Winders, Cutters, etc. etc. We will buy such machinery in any condition. Theo. Adams, 111 W. Washington St., Chicago, 2, Ill. TF

WANTED—One 56" and one 64" trim modern Cameron or Langston winder with slitting attachment just before the paper is wound on the roll. Give full description and price. Address Box 45-5 care Paper Trade Journal. J-25

WANTED

WANTED—Embossing Calender. Slitter Rewinder. Both heavy duty—50" wide or wider. Address Box 45-17 care Paper Trade Journal. F-1

WANTED—Second-hand Cameron Rewinder that will take a roll sixty to seventy inches in width. Address Fort Howard Paper Company, Green Bay, Wis. F-1

WANTED—48" to 56" seven roll supercalender with cotton rolls; 48" to 52" sheet cutter; 40-50 Ream Cutter. Address Box 45-42 care Paper Trade Journal. F-1

WANTED—Used tensile testing machine with elongation scale. Capacity 1000 grams. Motor drive preferred. State make, details and price. Address Box 45-47 care Paper Trade Journal. F-1

EFFICIENCY ENGINEERS—Wanted to Buy — cash — successful operating papermill, if management will remain and work with us. Efficiency Engineers, Cambridge City, 19, Indiana. J-25

WANTED — Ice Machine, 20 to 25 tons capacity, for use with waxing machine. Address Box 45-52 care Paper Trade Journal. J-25

WANTED—Jones or Miami No. 1 or No. 2 Jordan. Also two calender stacks approximately 100" face. Give complete description and specifications. Empire Box Corporation, Garfield, New Jersey. M-1

PAPER TRADE JOURNAL

ANNUAL REVIEW NUMBER

February 22, 1945

FOR SALE | FOR SALE | FOR SALE

PUBLIC AUCTION SALE

OF COMPLETE COATED PAPER PRODUCTS PLANT

ENTIRE MACHINERY, EQUIPMENT, FIXTURES, OFFICE FURNITURE, SUPPLIES, ETC.

Comprising Plant of

WALTHER & COMPANY, Inc.

(Mfgrs. of coated, embossed, printed, and glazed paper who are discontinuing manufacturing)

On the Premises 102 KANE ST. BROOKLYN, N. Y.

THURSDAY, FEB. 1945 (10:30 a.m. E.W.T.)

Consisting of Embossing Machines, Calenders, Sheeters, Slitters, Glazing Machines, Coating Machines, Varnishing Machines, Printing Machines, with drying and festooning attachments, Rewinders, Engraved Steel and Copper Rolls, Color Mixing and Grinding Machines, Machine Shop—comprising Lathes, Shapers, Drills . . . and hundreds of other items, including Shafting, Belting, lift trucks, OFFICE EQUIPMENT, etc.

SEVERAL HUNDRED ENGRAVED ROLLS—STEEL, COPPER AND PAPER IN VARIOUS DESIGNS AND SIZES FOR EMBOSSING AND PRINTING.

MACHINES STILL ON ORIGINAL FOUNDATION: PLANT WILL BE IN ACTUAL OPERATION UNTIL JAN. 25, 1945.

INSPECTION: FEB. 8 TO SALE DATE

(Otherwise by appointment.)

WRITE AUCTIONEER FOR FREE DETAILED AND ILLUSTRATED CIRCULAR

WRITE WIRE PHONE

INDUSTRIAL PLANTS CORPORATION

Auctioneers, Appraisers, Liquidators

90 WEST BROADWAY, NEW YORK 7, N. Y.

316 So. LaSalle St., Chicago, Ill. (Toledo, Ohio—Pittsburgh, Pa.)

The right man may be seeking a job in an advertisement in this section.

The machine or the material you urgently need may be advertised right here in these columns.

Read Them, Use Them—If you need something, advertise for it—if you have something to sell tell the industry about it—Everybody reads the Clearing House.

FOR SALE

One complete 98" Fourdrinier and auxiliaries, specifications as follows:—

1—Moore & White Co. 98" Fourdrinier Paper Machine (Wire 70' Long x 98" Wide).
2—Sets of Presses.
1—18" Diameter Suction Couch Roll (Sandusky).
1—150 H.P. General Electric Co. motor and starter, driving the wet end of this machine.
28—Dryers—48" Diameter x 98" Face (2 deck).
1—Baby Dryer—36" Diameter x 98" Face.
1—Bottom Felt Dryer——36" Diameter x 98" Face.
1—Top Felt Dryer—36" Diameter x 98" Face.
1—4-Roll Calender Stack.
1—2-Bowl Reel.
1—2-Drum Moore & White Co. Slitter and Winder.
7—1000 lb. Beaters (Noble and Wood Machine Co.).
1—200 H.P. motor and starter (3 phase, 60 cycles, 440 volts), driving line shaft for these beaters.
1—Motor driven Mammoth, Jr. Jordan (Noble and Wood Machine Co.).
3—10-plate Sandy Hill Flat Screens (Packer type), Witham Fasteners.
2—Sets of spare screen plates for the above Flat Screens.
1—Ames Twin Variable Speed Engine, from 80 to 200 H.P.
1—New bottom dryer felt—72 yards long x 98" wide.
1—New top dryer felt—78 yards long x 98" wide.
7—New Wet End felts—45' long x 100" wide.
1—New Fourdrinier Wire—70' long x 98" wide (80 mesh).

In addition to the above, we have available all the line shafting, piping, spare rolls, drives, stock chests, agitators, etc.
The above described machine is in excellent condition, having been in operation approximately three years on experimental work—presently on original foundations and can be seen in actual operation. Photos on request.

J. J. ROSS COMPANY, 250 Frelinghuysen Avenue, Newark 5, N. J. Telephone Bigelow 3-3728 J-25

TECHNICAL BOOKS AVAILABLE

BIBLIOGRAPHY OF PAPERMAKING, Vol. 1 1900-1928 — $10.00

PAPER MAKING MATERIALS (Reading List) By Clarence J. West, Ph.D. — $3.00

LOCKWOOD TRADE JOURNAL CO., Inc.
15 W. 47th St., N. Y. C.

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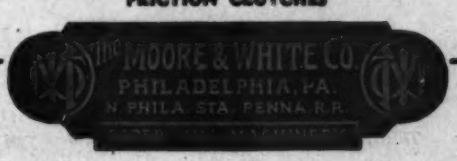
FRICTION CLUTCHES



We can all see with the naked eye that the Payroll Savings Plan provides the most stable method of war financing. Analyze it under the X-ray of sound economics and other important advantages are evident.

A continuous check on inflation, the Payroll Savings Plan helps American Industry to build the economic stability upon which future profits depend. Billions of dollars, invested in War Bonds through this greatest of all savings plans, represent a "high level" market for postwar products. Meanwhile, putting over Payroll Savings Plans *together* establishes a friendlier relationship between management and labor.

To working America the Payroll Savings Plan offers many new and desirable opportunities. Through this systematic "investment in victory," homes, education for their children and nest eggs for their old age are today within the reach of millions.

The benefits of the Payroll Savings Plan to both management and labor are national benefits. Instilling the thrift principle in the mind of the working men and women, the Payroll Savings Plan assures their future security—and is a definite contribution to the prosperity of postwar America!

The Treasury Department acknowledges with appreciation the publication of this message by

PAPER TRADE JOURNAL

This is an official U.S. Treasury advertisement prepared under the auspices of Treasury Department and War Advertising Council.

Price & Pierce Ltd.

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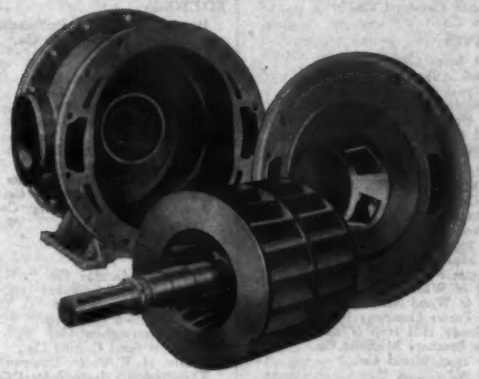
SIMPLICITY



NASH VACUUM PUMPS HAVE ONE MOVING PART

Operating advantages made possible by the Nash principle, and present in no other type of vacuum pump, permit a new level of operating economy. Nash Vacuum Pumps have but one moving part, a rotor cast in one piece, and revolving without metallic contact. There are no valves, no pistons or sliding vanes, no internal parts requiring wear adjustment or lubrication.

NASH ENGINEERING COMPANY
SOUTH NORWALK, CONNECTICUT, U. S. A.

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Fourdrinier Wires
MENASHA, WISCONSIN

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KIEL WISCONSIN

STEAM TURBINES
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WORM GEARS
CENTRIFUGAL BLOWERS AND COMPRESSORS
CENTRIFUGAL PUMPS
PROPELLER PUMPS
CLOGLESS PUMPS
MIXED-FLOW PUMPS
DE LAVAL-IMO OIL PUMPS

DE LAVAL STEAM TURBINE CO.
TRENTON 2, NEW JERSEY

Have you tried LOOMFIBRE
a
FINE WHITE FIBROUS INERT FILLER
for
PATENT COATED, WAXING, BLOTTING, PITCH CONTROL
W. H. Loomis Talc Corp. Gouverneur, N. Y.

JORDAN FILLINGS
BEATER BARS
BED PLATES
The Noble & Wood Machine Co.
HOOSICK FALLS, N. Y.

Sandy Hill
IRON & BRASS WORKS
BUILDERS OF SANDY HILL, BERTRAMS AND KAMYR EQUIPMENT
PAPER MACHINERY SPECIALISTS • HUDSON FALLS, N. Y.

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CONSULTANTS ON ALL WATER PROBLEMS
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Monsanto Chemical Co.
Norton Co.

ADHESIVES
Ambel Mfg. Co.
National Adhesives Division of National Starch Products, Inc.
Philadelphia Quartz Co.
Stein, Hall & Co., Inc.
United States Rubber Co.

AGITATORS
Appleton Machine Co.
Dilts Machine Works, Inc.
Dorr Company
Downingtown Mfg. Co.
Improved Paper Machy. Corp.
E. D. Jones & Sons Co.
D. J. Murray Mfg. Co.
Montague Machine Co.
Moore & White Co.
Noble & Wood Machine Co.
H. K. Porter Company Inc.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

BAG MACHINES
Thomas W. Hall Co., Inc.
Pusdevin Machine Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Weber, Herman G.

BARKERS AND CHIPPERS
Allis-Chalmers Mfg. Co.
Appleton Machine Co.
Carthage Machine Co.
D. J. Murray Mfg. Co.
Valley Iron Works Co.

BARS
Dilts Machine Works, Inc.
E. D. Jones & Sons Co.
The Moore & White Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Simonds Worden White Co.
Valley Iron Works Co.

BEARINGS
Bantam Bearings Division, The Torrington Company
Black-Clawson Company
Jones, E. D. & Sons Co.
The Manhattan Rubber Mfg. Co.
Montague Machine Works
Rollway Bearing Co.
Shartle Brothers Machine Co.
Shanango-Penn Mold Co.
Timken Roller Bearing Co.
Valley Iron Works Co.
T. B. Woods' Sons Company

BEATERS & JORDANS
The Appleton Machine Co.
Black-Clawson Company
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Herman Mfg. Co.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
J. J. Ross Company
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works

BED PLATES
Bahr Brothers Mfg. Co.
Dilts Machine Works Inc.
Downingtown Mfg. Co.
Farrel-Birmingham Co., Inc.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Simonds Worden White Co.
Valley Iron Works Co.

BELTING
Allis-Chalmers Mfg. Co.
The Cincinnati Rubber Mfg. Co.
The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.
J. E. Rhoads & Sons
United States Rubber Co.
T. B. Wood's Sons Company
Worthington Pump & Machinery Corp.

BLEACHING APPARATUS
Improved Paper Machy. Corp.
E. D. Jones & Sons Co.
Perkins & Sons, Inc., B. F.
Moore & White Co.
Niagara Alkali Co.
Noble & Wood Machine Co.
Pennsylvania Salt Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

BLOW PIPES & PITS
Montague Machine Co.
Moore & White Co.
Murray Mfg. Co., D. J.
Walworth Company
Valley Iron Works Co.

BOTTOMS
Harrington & King Perforating Co.
Kalamazoo Tank & Silo Co.

CALENDERS
Black-Clawson Company
Downingtown Mfg. Co.
Farrel-Birmingham Co., Inc.
Lobdell Car Wheel Co.
Moore & White Co.
Perkins & Son, Inc., B. F.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works
Waldron Corp., John

CASTINGS
Appleton Machine Co.
Black-Clawson Company
Dilts Machine Works
Downingtown Mfg. Co.
Farrel-Birmingham Co.
Fort Pitt Steel Casting Co., Div. H. K. Porter Company, Inc.
The Frederick Iron & Steel Co.
Grinnel Company
Hamblet Machine Co.
E. D. Jones & Sons Co.
Lobdell Car Wheel Co.
Montague Machine Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Shenango-Penn Mold Co.
Smith & Winchester Mfg. Co.
Traylor Engineering & Mfg. Co.
Union Machine Company
Union Screen Plate Co.
Valley Iron Works Co.
Walworth Company

CENTRIFUGAL MACHINERY
Bird Machine Co.
De Laval Steam Turbine Co.
Nichols Engrg. & Research Corp.
Ross J. O. Eng. Co.
Shartle Brothers Machine Co.

CHEMICALS
Aktivin Corporation
Amer. Cyanamid & Chem. Corp.
Ansul Chemical Co.
Calco Chemical Co.
Diamond Alkali Co.
Dispersion Process Inc.
Dow Chemical Company
E. I. du Pont de Nemours & Co., Inc.
General Dyestuff Corp.
Geigy Co., Inc.
Gottesman & Co.
Hooker Electrochemical Company
The Mathieson Alkali Works, Inc.
Monsanto Chemical Company
The Neville Company
National Oil Products Co.
Naugatuck Chemical Div. of U. S. Rubber Co.
Niagara Alkali Company
Paper Makers Chemical Department, Hercules Powder Co.
Pennsylvania Salt Mfg. Co.
Pittsburgh Plate Glass Co., Columbia Chemicals Division
Solvay Sales Corp.
Stauffer Chemical Company
United States Rubber Co.
Witco Chemical Co.
Wyandotte Chemicals Corp.

CLEANING MATERIALS
Amer. Cyanamid & Chem. Corp.
Bird Machine Co.
E. I. du Pont de Nemours & Co., Inc.
Oakite Products, Inc.
Paper Makers Chemical Department, Hercules Powder Co.
Magnus Chemical Co.
Nichols Engrg. & Research Corp.
Pennsylvania Salt Mfg. Co.
Philadelphia Quartz Co.
Pittsburgh Plate Glass Co., Columbia Chemical Division
Solvay Sales Corp.
Wyandotte Chemicals Corp. J. B. Ford Division

CLUTCHES
Appleton Machine Co.
Black-Clawson Company
Hudson Sharp Machine Company
Farrel-Birmingham Co.
Fawick Airflex Co., Inc.
Horton Manufacturing Co.
Rodney Hunt Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
Stearns Magnetic Mfg. Co.
Valley Iron Works Co.
T. B. Wood's Sons Company

COATING MACHINERY
Hudson Sharp Machine Company
Moore & White Co.
Pusdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.
Waldron Corporation, John
Weber, Herman G.

COMPRESSORS
Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
Ingersoll-Rand Co.
Nash Engineering Co.
Worthington Pump & Machinery Corp.

CONSULTING ENGINEERS
W. H. L. D. Betz
Frederic C. Clark
W. R. Cliffe
Ferguson, Hardy S.
Hardy, George F.
Johnson & Wierk, Inc.
The Kohler System Company
L. I. M. E.
Merritt-Chapman & Scott Corp.
Main, Inc., Chas. T.
J. E. Sirrine & Co.
Stone & Webster Engrg. Corp.

CONVEYORS
Black-Clawson Company
Murray, D. J. Mfg. Co.
Ross Engineering Corp., J. O.

CORES
Elixman Paper Co.
Senoco Products Co.
Rodney Hunt Machine Co.
Montague Machine Co.
Smith & Winchester Mfg. Co.
Walker-Goulard-Plehn Co.

COUPLINGS
Black-Clawson Company
De Laval Steam Turbine Co.
Farrel-Birmingham Co., Inc.
The Frederick Iron & Steel
E. D. Jones & Sons Co.
Moore & White Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works
Waldron Corp., John
Westinghouse Electric Mfg. Co.
T. B. Wood's Sons Company

CUTTERS
Thomas W. Hall Co.
Noble & Wood Mach. Co.
Perkins & Son, Inc., B. F.
The Smith & Winchester Mfg. Co.
Taylor Stiles & Co.

DAMPENERS
Perkins & Son, Inc., B. F.
Valley Iron Works Co.

DE-INKING
Kinsley Chemical Co.
O'Donoghue, Roderick

DIGESTERS
The Bigg Boiler Works Co.
H. K. Porter Company Inc.
Pusey & Jones Corp.

DOCTORS
Bird Machine Company
Black-Clawson Company
Downingtown Mfg. Co.
Lobdell Co.
Montague Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

DOCTOR BLADES
Black-Clawson Company
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
Montague Machine Co.
Rotogravure Engrg. Co.
The Sandy Hill Iron & Brass Works
Simonds Worden White Co.
Shartle Brothers
United States Rubber Co.
Westinghouse Electric & Manufacturing Company

DRIERS
Black-Clawson Company
Murray Mfg. Co., D. J.
J. J. Ross Company
Ross, J. O. Engineering Corp.
Rotogravure Engrg. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Traylor Engineering & Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

DRIVES
Allis-Chalmers Mfg. Co.
Appleton Machine Co.
Bird Machine Co.
Black-Clawson Company
Davis, Frank H., Co.
De Laval Steam Turbine Co.
Dilts Machine Works
Downingtown Mfg. Co.
Farrel-Birmingham Co.
General Electric Company
Horton Manufacturing Co.
Rodney Hunt Machine Co.
W. A. Jones Fdy. & Mch. Co.
Montague Machine Co.
Moore & White Co.
Murray, D. J. Mfg. Co.
Noble & Wood Machine Co.
Pusey & Jones Corp.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
T. B. Wood's Sons Co.
Valley Iron Works Co.
Westinghouse Electric & Manufacturing Company

DUSTERS
Appleton Machine Co.
Downingtown Mfg. Co.
E. D. Jones & Son Co.
Moore & White Co.
Noble & Wood Machine Co.
Norwood Engrg. Co.
D. J. Murray Mfg. Co.

DYESTUFFS
Calco Chemical Co.
Ciba Company
E. I. du Pont de Nemours & Co.
Geigy Co., The
General Dyestuff Corp.
National Aniline Division, Allied Chemical & Dye Corp.
Paper Makers Chemical Department, Hercules Powder Co.
C. K. Williams & Co.
Witco Chemical Co.

EVAPORATORS
Black-Clawson Company
Goslin-Birmingham Mfg. Co., Inc.
Murray, D. J., Mfg. Co.
Traylor Engineering & Mfg. Co.

FANS
General Electric Co.
B. F. Perkins & Son, Inc.
Ross Engineering Co., J. O.

FEEDERS
Merrick Scale Mfg. Co.
Leeds & Northrup
Traylor Engineering Co.
Wallace & Tiernan

FELTS
Appleton Woolen Mills
Asten-Hill Mfg. Co.
Bloomfield Woolen Co.
Bulkley, Dunton Pulp Co. Inc.
Draper Bros. Corp.
Fitchburg Duck Mills
Huyck & Son, F. C.
Lockport Felt Co.
Mt. Vernon-Woodbury Mills, Inc.
Morey Paper Mill Supply Co.
Orr Felt & Blanket Co.
Shuler & Benninghofen
Waterbury Felt Co.
Woodward, Baldwin & Co.

FELT GUIDES
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

FILLERS
American Colloid Co.
Amer. Cyanamid & Chem. Corp.
International Pulp Co.
W. H. Leomis Talc Corp.
Union Talc Co.
Vanderbilt Co., R. T.
Wishnick-Tumpeer, Inc.

FILTERS
Moore & White Co.
J. O. Ross Engrg. Corp.
Worthington Pump & Mchy. Corp.
Witco Chemical Co.

FLOORING, GRATING & TREADS
Hendrick Mfg. Co.
Klemp, W. F., Co.
Norton Co.
Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.
Robinson, C. P.
United States Rubber Co.

FORMING MACHINES
Downingtown Mfg. Co.
Noble & Wood Machine Co.
Oliver United Filters
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

WHERE TO BUY

GEARS
Black-Clawson Company
De Laval Steam Turbine Co.
Downingtown Mfg. Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

GRINDERS
Covel-Hanchett Co.
Farrel-Birmingham Co.
Lobdell Car Wheel Co.
Montague Machine Co.
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Works

GRINDING WHEELS
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
Simonds Worden White Co.
United States Rubber Co.

HEATING, VENTILATING AND AIR CONDITIONING
The Appleton Machine Co.
Armstrong Machine Works
E. D. Jones & Sons Co.
General Electric Co.
Grinnell Company
Leeds & Northrup
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
Ross Engineering Corp., J. O.
Shartle Brothers Machine Co.
Valley Iron Works Co.
Worthington Pump & Mchy Corp.

HOISTS
Appleton Machine Co.
Dilts Machine Works
Rodney Hunt Machine Co.
Ingersoll-Rand Co.
E. D. Jones &Sons Co.

HOSE (Air, Water, Suction, etc.)
The Cincinnati Rubber Mfg. Co.
The Manhattan Rubber Manufacturing Division of Raybestos-Manhattan Inc.
United States Rubber Co.

INSTRUMENTS, TESTING AND MEASURING
W. H. & L. D. Betz
N. P. Bowsher
The Foxboro Company
General Electric
W. & L. B. Gurley
Leeds & Northrup Company
National Technical Laboratories
B. F. Perkins & Son
Taylor Instrument Cos.
Wallace & Tiernan Co., Inc.
Westinghouse Electric & Manufacturing Company
Wilkens-Anderson Co.

JORDAN FILLINGS
Appleton Machine Co.
Behr Brothers Mfg. Co.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

KNIVES
Black-Clawson Company
Dilts Machine Works, Inc.
Hamblet Machine Co.
E. D. Jones & Sons Co.
Simonds Worden White Co.
Valley Iron Works Co.

LABORATORY EQUIPMENT
Appleton Machine Co.
W. H. & L. D. Betz
Dilts Machine Works
E. D. Jones & Sons Co.
Leeds & Northrup Company
National Technical Laboratories
Noble & Wood Machine Co.
Taber Instrument Co.
Taylor Instrument Companies
Valley Iron Works Co.

LAY BOYS
Hamblet Machine Co.
Moore & White Co.
Shartle Brothers

LUBRICANTS
Gulf Oil Corporation
Gulf Refining Co.
Sinclair Refining Co.
Socony-Vacuum Oil Co., Inc.
Sun Oil Company
Tide Water Associated Oil Co.

MICROMETERS & CALIPERS
Farrel-Birmingham Co.
Montague Machine Co.
Lobdell Car Wheel Co.
Walker-Goulard-Plehn Co

MIXERS
Youngstown Welding & Engrg. Co.

MOISTENING EQUIPMENT
The Spray Engineering Co.

MOTORS AND GENERATORS
Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
General Electric Co.
Ingersoll-Rand Co.
Reliance Electric & Engrg. Co.
Westinghouse Electric & Manufacturing Company

PACKING BOXES
Johnson Corporation
Shartle Brothers Machine Co.

PACKING
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
United States Rubber Co.

PAPER MACHINES
Black-Clawson Company
Downingtown Mfg. Co.
Thomas W. Hall Co.
Moore & White Co.
Pusey & Jones
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester

PAPER MACHINE SLICES
Black-Clawson Company
E. D. Jones & Sons Co.
Montague Machine Co.
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.

PAPER TUBE MACHINERY
Dietz Machine Works
Thomas W. Hall Co.
Hudson Sharp Machine Company
Langston Co., Samuel M.

PASTING MACHINES
Black-Clawson Company
Davis, Frank H., Co.
Murray, D. J., Mfg. Co.
Moore & White Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Waldron Corp., John

PERFORATED METAL
Allis-Chalmers Mfg. Co.
Harrington & King Perforating Co.
Hendrick Mfg. Co.

PIPE
Black-Clawson Company
Crane Company
Grinnell Company
Shartle Brothers Machine Co.
Taylor Forge & Pipe Works
Walworth Company
Youngstown Welding & Engrg. Co.

PLATERS
The Norwood Engineering Company
Perkins & Son, Inc., B. F.

PLATES
Black-Clawson Company
Hendrick Mfg. Co.
Klemp, W. F., Co.
J. O. Ross Engrg. Corp.
Shartle Brothers Machine Co.
Timken Roller Bearing Co.

PLUGS
Black-Clawson Company
E. D. Jones & Sons Co.
The Noble & Wood Machine Co.
The Richardson Economy Plug Co.
Shartle Brothers Machine Co.

PRESSES
Black-Clawson Company
Farrel-Birmingham Co.
Dietz Machine Wks.
Thomas W. Hall Co.
Hudson-Sharp Machine Co.
Paper Converting Machine Co., Inc.
Potdevin Machine Co.
Rotogravure Engineering Co.
Shartle Brothers
Valley Iron Works Co.
Waldron Corp., John
Weber, Homer G.

PULPS
Andersen Co., J.
Bulkley, Dunton Pulp Co., Inc.
Gottesman & Co., Inc.
Perkins-Goodwin Co.
Price & Pierce, Ltd.
Pulp and Paper Trading Co.

PUMPS
Allis-Chalmers Mfg. Co.
Black-Clawson Company
Dorr Company
Downingtown Mfg. Co.
De Laval Steam Turbine Co.
Frederick Iron and Steel Co.
Ingersoll-Rand Co.
Johnson Corp.
Moore & White Co.
Nash Engineering Co.
Noble & Wood Machine Co.
Paper Converting Mch. Co.
Quimby Pump Co. Div. of H. K. Porter Company, Inc.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Warren Steam Pump Company
Worthington Pump & Machinery Corp.

RECOVERY SYSTEMS
Bulkley, Dunton Pulp Co., Inc.
Rodney Hunt Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Pusey & Jones
Ross Engineering Corp. J. O.
Valley Iron Works Co.

RECTANGULAR BINS
Traylor Engineering & Mfg. Co.

REELS
Black-Clawson Company
Downingtown Mfg. Co.
De Laval Steam Turbine Co.
Hudson Sharp Machine Company
The Kohler System Company
Montague Machine Co.
Moore & White Co.
Papef Converting Mch. Co.
Rodney Hunt Machine Co.
Rotogravure Engrg. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
The Smith & Winchester Mfg. Co.

REFINERS
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Bahr Brothers Mfg. Co.
Bauer Brothers Co.
Dilts Machine Works
The Hermann Manufacturing Co.
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Murray, D. J. Mfg. Co.
Noble & Wood Machine Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Sprout, Waldron & Co.
Valley Iron Works

REGULATORS
Allis-Chalmers Mfg. Co.
Armstrong Machine Works
Bird Machine Company
The Brown Instrument Co.
The Foxboro Company
Jones, E. D., & Sons Co.
General Electric Co.
Johnson Corp.
Leeds & Northrup Company
National Technical Laboratories
Noble & Wood Machine Co.
Shartle Brothers
Taylor Instrument Companies
Wallace & Tiernan
Westinghouse Electric & Manufacturing Company

RESINS
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The Neville Company
The Resinous Products & Chemical Co.

ROLLS
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Black-Clawson Company
Downingtown Mfg. Co.
Farrel-Birmingham Co.
Improved Paper Machy. Corp.
Lobdell Co.
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
Montague Machine Co.
D. J. Murray Mfg.. Co.
Noble & Wood Machine Co.
Perkins, B. F., & Sons Co.
Pusey & Jones Corp.
Roehlen Engraving Co.
J. J. Ross Company
Rodney Hunt Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Shenango-Penn Mold Co.
Sinclair Co.
Smith & Winchester Mfg. Co.
Stearns Magnetic Mfg. Co.
United States Rubber Co.
Valley Iron Works Co.
Waldron Corp., John

ROLL COVERS
The Cincinnati Rubber Mfg. Co.
Youngstown Welding & Engrg. Co.

ROLL STANDS
Cameron Machine Co.
Johnstone Eng. & Machine Co.
The Kohler System Company
Moore & White Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.

ROTARY KILNS
Traylor Engineering & Mfg. Co.

RUG MILLS
Traylor Engineering & Mfg. Co.

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Black-Clawson Company
Moore & White Co.
Noble & Wood Machine Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman C.

SCALES
Merrick Scale Mfg. Co.

SCREEN PLATES
Pitchburg Screen Plate Co.
Morey Paper Mill Supply Co.
Union Machine Co.
Union Screen Plate Co.

SCREENS
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Appleton Wire Works
Appleton Machine Co.
Bird Machine Company
Carthage Machine Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Harrington & King Perforating Co.
Hendrick Manufacturing Co.
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Montague Machine Co.
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Moore & White Co.
Shartle Bros. Mach. Co.
Smith & Winchester Mfg. Co.

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Black-Clawson Company
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du Pont, E. I., de Nemours & Co.
National Oil Products Co.
Paper Makers Chemical Department, Hercules Powder Co.
Socony-Vacuum Co.
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SIZING PROCESSES
National Oil Products Co.

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Carthage Machine Co.
Dietz Machine Works
Downingtown Mfg. Co.
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Hamblet Machine Co.
Hudson Sharp Machine Company
Johnstone Eng. & Machine Co.
Langston Co., Samuel M.
Moore & White Co.
D. J. Murray Mfg. Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Simonds Worden White Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

SPRAY NOZZLES
The Spray Engineering Co.

STARCH
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Clinton Co.
National Starch Products, Inc.
Stein, Hall & Co., Inc.

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Shartle Bros. Mch. Co.
Stickle Steam Specialties Co.

STRAPPING & STRAPPING MACHINES
The Stanley Works

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Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Westinghouse Electric & Manufacturing Company.

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Stauffer Chemical Company
Texas Gulf Sulphur Co.
Witco Chemical Company

SULPHUR BURNERS
Valley Iron Works Co.

TALC
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W. H. Loomis Talc Corp.
International Talc Company

TANKS
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The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
The Noble & Wood Machine Co.
H. K. Porter Company Inc.
Rodney Hunt

J. O. Ross Engrg. Corp.
Shartle Brothers Machine Co.
Traylor Engineering & Mfg. Co.
United States Rubber Co.
Waldron Corp., John
Youngstown Welding & Engrg. Co.

THICKENERS, DECKERS & SAVEALLS
Bird Machine Company
Bulkley, Dunton Pulp Co. Inc.
Carthage Machine Co.
Dilts Machine Works
Dorr Co.
Downingtown Mfg. Co.
Montague Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

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Titanium Pigment Co.
R. T. Vanderbilt Co.
Witco Chemical Company

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Walworth Company

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Wright-Hibbard Ind. Elec. Truck Co.

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Crane Co.
Grinnel Company
Johnson Corporation
Shartle Bros. Mch. Co.

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Rodney Hunt Machine Co.
Shartle Brothers
Valley Iron Works Co.

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De Laval Steam Turbine Co.
General Electric Company
Hunt, Rodney, Mach. Co.
Westinghouse Electric & Manufacturing Company
Worthington Pump & Machinery Corp.

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Gibbs-Brower Co.
Thomas W. Hall Co.
Noble & Wood Machine Co.
Rotogravure Engrg. Co.
J. J. Ross Company
Shartle Brothers Machine Co.

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The Foxboro Company
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Kennedy Valve Mfg. Co.
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
William Powell Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Taylor Instrument Companies
Valley Iron Works Co.
Walworth Company

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Union Screen Plate Co.

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Moore & White Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Works
Rodney Hunt Machine Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

WAXING MACHINERY
Black-Clawson Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

WELDING EQUIPMENT
Allis-Chalmers Mfg. Co.
General Electric Company
Walworth Company
Westinghouse Electric & Manufacturing Company

WET MACHINES
Black-Clawson Co.
Carthage Machine Co.
Downingtown Mfg. Co.
Moore & White Co.
Montague Machine Co.
Noble & Wood Machine Co.
Pusey & Jones Corp.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

WINDERS AND REWINDERS
Black-Clawson Company
Cameron Machine Co.
Dietz Machine Works
Downingtown Mfg. Co.
Thomas W. Hall Co.
Hudson-Sharp Mach. Co.
Langston Co., Samuel M.
Johnstone Eng. & Machine Co.
The Kohler System Company
Montague Machine Co.
Moore & White Co.
Paper Converting Mch. Co.
Potdevin Machine Co.
Pusey & Jones Corp.
Rotogravure Engrg. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Waldron Corp., John

WIRES
Appleton Wire Works
Black-Clawson Company
Bulkley, Dunton Pulp Co. Inc.
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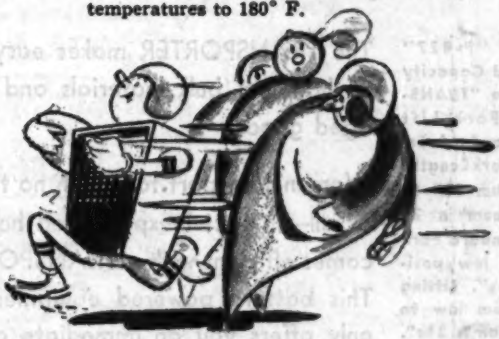

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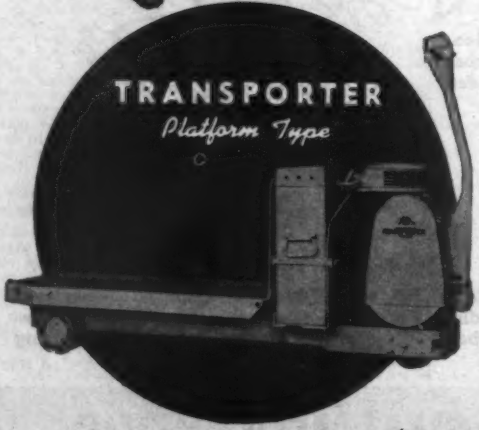

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